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ABSTRACT

Since 1968, Lindbergh School District fifth graders have participated in a five day resident camp program designed to foster an appreciation for nature, to promote self-reliance while developing emotional maturity, and to provide a communal living experience with peers and teachers. The handbook is a composite of teachers', administrators', and students' efforts toward developing this Outdoor Education Program. Every phase of the camp program and its organization is detailed, including a description of the school district, a history of the Outdoor Education Program, camp rules, counselor application procedures and responsibilities, health services, camp library resources, camp schedules, camper responsibilities, flag ceremonies, weather observation procedures, get acquainted activities, songs, and pre-trip orientation plans. Curriculum materials focus on tree identification, soils and geology, pond life, insect study, animal study, fishing, archery, and art, and include lesson plans, activities, work sheets, and appropriate student hand outs. Student and teacher evaluation forms are presented along with samples of certificates, checklists, and charts. (NEC)

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LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

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LINDBERGH SCHOOL DISTRICT
4900 South Lindbergh Blvd.
St. Louis, Missouri 63126

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LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM # 1

foreword

Form # 2

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FOREWORD

> "Every child should have mud pies, grasshoppers, waterbugs, tadpoles, frogs, mud turtles, elderberries, wild strawberries, acorns, chestnuts, trees to climb, animals to pet, hay fields, pine cones, rocks to roll, sand, snakes, huckleberries, and hornets -- and any child who has been deprived of these has been deprived of the best part of his education".
>
> Luther Burbank

The classroom out-of-doors affords the opportunity for children to look at many of natures wonders.

What they SEE, depends on you and me.

This week of residential camping in Mother Nature's classroom can be one of the most rewarding and growth producing experiences in the entire course of their childhood!

It is a pleasure to present to:

____

The First Edition

of

LINDBERGH SCHOOL DISTRICT
4900 South Lindbergh Blvd.
St. Louis, Missouri 63126

OUTDOOR EDUCATION HANDBOOK
September 1, 1973

Willis R. M. Schott
Camp Director

Form # 3

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

ACKNOWLEDGMENT

The material presented in this handbook is a composite of many individuals untiring effort toward developing a fifth grade Outdoor Education Program where the child has a one to one contact with the great out-of-doors, exploring, discovering, collecting, investigating, and evaluating his or her niche in society.

Certificated Personnel have been largely responsible for the success of our on-going program, where the student has increased appreciation for nature, gained self-reliance while developing emotional maturity, having joined with the teacher in living, studying and eating together in a community setting from Sunday thru Friday.

Individual school districts and other governmental bodies across these United States have unselfishly shared with our committees many materials so important in the developing of such a program.

High School Student Counselors have discharged their responsibility admirably and have added a zest to the camp atmosphere as only a teenager can.

The Parents of our students . . . Are, Support with a capital "S". Only they know of the many happenings while getting the student ready, clothing marked and packed, physicals taken and then WRITING!; afterward listening to the endless tales of adventures.

Thanks to an understanding Superintendent and our District's Board of Education who have supported the Outdoor Education Program.

To Camp Mo-Val - without their excellent, modern, winterized facilities, kitchen and maintenance staff, all of this would not have been possible.

Lastly to the Camper------

We are glad to have a week of your time.

September 1, 1973

A DESCRIPTION OF LINDBERGH, A SUBURBAN SCHOOL DISTRICT, IN THE ST. LOUIS, MISSOURI AREA

One word spells out the history of the Lindbergh School District - GROWTH. It has been going on since the district was formed by the consolidation of five elementary districts in 1949.

The five original districts consisted of a single school each - Concord, Fenton, Grant, Rott and Sappington - with a total of 25 classrooms and an enrollment of 850. The sprawling new district encompassed a sparsely populated 23-square-mile area with a population of slightly more than 8,500. With no high school within the district, students at this level attended classes in nearby communities.

In ten short years the population had more than tripled, reaching 30,800 by 1960. The 1970 census showed an approximate population of 70,00 people. The projections based on current building trends and availability of land within the district indicate a probable population of 125,000 by 1980, just ten years hence.

The boundaries of the district follow no political subdivisions, but include the cities of Crestwood and Sunset Hills, the town of Grantwood Village, portions of Fenton and Lakeshire and an extensive unincorporated area in Gravois, Bonhomme and Concord townships.

School enrollment has grown at an even higher rate than the population - from 850 in 1950 to nearly 12,000 today. School boards and district residents over the years have looked to the future and planned accordingly.

In 1950 the school community set about to provide a high school for its youngsters. And this was only the beginning. Today's facilities include nine elementary schools, a high school and two middle schools. A fleet of contracted buses serves the 23-square-mile area, transporting an average of 10,000 students daily. The lifeline of supplies that sustains the schools extends throughout the Greater St. Louis Area, and beyond.

1000 EMPLOYED

Almost 1000 persons are employed by the district, including teachers, administrative, secretarial, custodial, cafeteria, nursing and specialized personnel. Salaries of personnel amount to more than six million dollars.

The school grounds and buildings also serve the community on a year-round basis, providing meeting places to a number of community organizations and facilities for a variety of recreational activities such as Crestwood's summer program, Khoury League baseball, the county's Parks and Recreation Department swimming program and the South County YMCA's tennis, crafts and sports program.

But the business of schools is not buildings and payrolls... it is education...and the objective of the district has always been to provide the best possible education to each and every child who passes through the system. Learning is not limited to the student body, though, as administrators, teachers and the board of education are constantly seeking and finding new and better means of achieving the prime objective of a quality educational system.

AAA RATING

In 1957 the district received AAA accreditation, the highest of four possible ratings given by the State Board of Education. A minimum of 48-1/2 approved high school units are required for this rating and Lindbergh's latest report shows 105 approved units. Since 1960 the high school has also been accredited by the North Central Association of Colleges and Secondary Schools. All acceditation is reviewed annually.

The district has long been cognizant of the progress of automation. Ten years ago a computer program was undertaken for the master scheduling and grade reporting of grades nine through twelve. In January of 1968 a computer program was undertaken in cooperation with McDonnell Automation in order to determine what applications of computer technology might be useful to an educational institution. The initial programs proved successful and today an IBM 1130 computer is solving problems for high school students, working out instructional programs for teachers, handling many of the details of payroll, accounting, grade reporting and bus routing.

An extension of the curriculum in 1968 also included a program of Outdoor Education designed to teach students about Man's relationship to Nature and his dependence on Natural resources. This week-long experience offered to all fifth grade students enables them to gain first hand experience in many facets of learning not encountered in the regular classroom.

VARIOUS APPROACHES

A variety of teaching approaches are employed in the school system, matching the capabilities of the teaching staff to the student and the subject matter. In many areas team teaching has been found to be a most effective approach; in an elementary school, the ungraded system has proven quite effective.

Students are being directed and motivated to seek out information on their own and reach conclusions based on their findings. If these conclusions are incorrect, the teacher can then, through questioning, bring students to retrace their thinking and find where they went astray on their own. One of the best lessons a youngster learns in progressing through an idea to a conclusion is that he must not assume anything.

These are just a few samples of the leadership constantly working to better the educational opportunities provided in the district. Curricula and course outlines are under continuous review, insuring the maintenance of a quality educational program. The board of education, the administrative and teaching staffs, and the other employes of the district are dedicated to continuing toward a record of excellence during the decade of the '70s.

Form # 6

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

AN ARTICLE FROM THE LINDBERGH NEWSLETTER PUBLISHED BY THE BOARD OF EDUCATION

Nov.-Dec. 1970

"That's the most reluctant worm I've ever seen," said the fifth-grader as she tried to string a wiggling worm on a fish hook.

"Hey, great...I get to feed the pigs today," an excited youngster remarks to his new-found friend and roommate. "Y'know I never even saw one 'til yesterday!" "They call it sloppin' the hogs," his pal replies.

"Did y' see the praying mantis I caught this morning, Billy?" "Sure, but somebody put another one in the terrarium and the female ate the male."

This "kid talk" was heard recently in a pleasant, rustic camp setting 45 miles from the Lindbergh district administration office. Though it was a regular school day, 84 fifth-grade youngsters were far from their usual classrooms, but not playing hookie. They were taking part in a five-day outdoor education program... and enjoying every minute of it.

FIFTH GRADERS

The program, begun in 1968, is held on 260 rolling acres at Camp Mo-Val, near Union, Mo. The property is rented from the United Church of Christ. Every fifth-grade student in the district has the opportunity to attend one of the five-week sessions held each spring and fall. As most any youngster who has been there will testify..."it's great."

Many returning children excitedly relate their "experiences" at camp. Few will come back with a recital of what they"learned." But in this very fact lies the success of the outdoor education program. The wonderment, interest and fun of their experiences reflect the learning process in a form most interesting and appealing to youngsters of fifth-grade age. The learning, which is the primary purpose of the program, goes along unobtrusively.

The first-hand discovery of a "walking stick" insect generates much more curiosity and motivation to find out about this peculiar insect than could possibly be generated by a picture in a classroom book. Stomping through the woods the children learn the lessons that only nature can teach. With the clean fresh smell of greenery...the sounds of wild life filling the air...the feel of cool waters in quiet streams - these are some of the the things that "school" in the woods offers the children that they might never learn so well in a classroom.

WELL-ROUNDED PROGRAM

In providing students with the opportunity to discover and explore the wonders of nature (for many this is their first such exposure), the program includes two hours each of lake and pond life, tree identification, fishing, soils and geology, rotten log and tree stumping, archery, arts and crafts and the general tour.

Insect and animal homes are spotted as the tour groups trace their way through the woods and across fields. Rock out-croppings, soil erosion, growth rings on tree stumps - all are viewed in their natural state. Rocks are identified,

Form # 7

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
AN ARTICLE FROM THE LINDBERGH NEWSLETTER
PUBLISHED BY THE BOARD OF EDUCATION
Nov.-Dec. 1970

causes of soil erosion determined, and the ages of trees ascertained on the basis of growth rings.

The fact that a tree may be over 100 years old can be impressive to children about one-tenth that age. But its significance is enhanced when Camp Director Willis Schott points out blackened spots on a cross section of a trunk and explains that 90 or 100 years ago someone probably had nailed a sign on this tree and never came back to pull the nail out. "Public notices were posted in this way back in those days," he tells the boys and girls, "from 'Wanted' signs about bandits to election campaign signs." This little story brings to life in the minds of today's children a bit of interesting reality from the lives of the nation's pioneers.

LEARNING CAN BE FUN

Mr. Schott, who has worked with the outdoor program since its institution at Lindbergh, relishes the experience as much as any youngster. He continuously devises games and activities that make learning fun as, for example, when he announced to an assembly that they were all "invited to a wedding." He had listed on the blackboard the names of some 25 or 30 flowers. "Now in preparing for the wedding," Mr. Schott said, "the bride decided she would carry 'what' in her hands as she went down the aisle?" "Bridal wreath," came the answer as the children scanned the list of flowers. "And what was the bride's pet name for her prospective husband?" Mr. Schott asked. "Sweet William" came the quick response. "What do you think the bride's veil was made of?" "Queen Anne's Lace," was the ready reply.

When the students first arrive by bus late Sunday afternoon, they open their "secret orders" which give their cabin assignments, stow their gear and get acquainted with each other. Before the Sunday to Friday program is over they will have found that teachers, too are only human.

Accompanying the students to the camp each week are three teachers, a principal, a physical education instructor, an art teacher and 10 Lindbergh High students who assist as counselors. A nurse is in attendance at all times and a music instructor and a librarian make regular appearances on the program. Every Wednesday morning a man from the Missouri Department of Conservation talks with the youngsters.

MODERN ACCOMMODATIONS

Students are housed in cottages located near the main building, which has a large recreation hall and a cafeteria. The main building is on a hillside overlooking the camp's lake. The electrically-heated cabins, four to a cottage, accommodate six students and a teacher or counselor, have bunk beds, shelves, a chest and a bathroom with a shower. Cabin assignments are arranged so the children mix with those from other schools, rather than just their own classmates.

In short order, a camaraderie develops in each cabin group and competition flourishes between cabins to win first place in the daily cabin inspection. "Where's Kenny?" a jeans-clad teacher asked at morning roll call. "He's still making his bed," a ten-year-old offered. No member of the group wants to let his fellows down, of course, but making beds is a new responsibility for some and it takes a bit longer to master the knack, particularly if it's the top bunk.

On Monday morning everyone sets out on a two-hour general tour designed to familiarize them with the grounds. New plantings are pointed out and rotten logs noted for later investigation. Each morning and afternoon the youngsters divide into sections for the two-hour scheduled activities. The "pond life" group takes its samples to a lab area and, through the wonder of the microscope, peek into the previously hidden world of microscopic life revealed in their lake specimens. A frog and a fish may be dissected and the students examine the parts...from the leg muscle of a frog to the beating heart of a fish.

Meanwhile other groups [illegible] through the woods, marking topographic maps, taking samples of earth and rock, noting the different features of the trees, flowers and lichen. Turtles, lizards, insects and spiders are often picked up by the youngsters and placed in terrariums for observation. Before departure, all are returned to their natural environment.

During a special interest hour each morning and afternoon, the fifth-graders may be found observing the felling of a tree, participating in a relay race around the lake or conversing with a state conservation officer on the part the children can play in maintaining a good habitat for all. Then there's a turtle race or scavenger hunt perhaps...or another chance at "the one that got away" during the morning's fishing.

After lunch each day a special quiet hour is used for letter writing, preparing skits, decorating cabins, classifying specimens, doing research, napping or developing the cabin's animal report. A number of mounted animals are on hand so that the children may touch and closely inspect the specimen they are studying. This inanimate menagerie presently includes muskrat, mole, squirrel, robin, fox, mink, racoon, quail, woodchuck, and mallard. Live specimens are bass, crappie, bluegill, frogs, box and snapping turtles.

Skill, knowledge and luck all play a part in winning the Mo-Val Olympics award each week. Points can be won in every camp activity - from tug-of-war contests to best animal reporting. At week's end, the two top scoring cabins, one boys' and one girls', are named. Each member of these cabin groups receive their own Mo-Val Olympics certificate.

Form# 9

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

AN ARTICLE FROM THE LINDBERGH NEWSLETTER
PUBLISHED BY THE BOARD OF EDUCATION
Nov.-Dec. 1970

Every youngster in the course of his stay participates in each of the nature studies. Each youngster also is assigned camp jobs. There are six such jobs and every camper serves one day in each capacity. Dining room tasks include host or hostess, hopper (serves table) and porter (the clean-up detail). Then there is the job of secretary, sanitary engineer and grounds keeper. All also serve on flag detail, and as bell ringers, weather reporters and forecasters. The feeding of a sow and a litter of 10 pigs, born last May, is usually a first for most of the youngsters. Parents are frequently surprised and delighted at the new found skills, responsibility and maturity children demonstrate after their experience in the program.

A day at Camp Mo-Val is, indeed, a full day, from the 7:00 reveille each morning to the sounding of taps at 9:30 each evening. But it's a good day...an interesting, exciting and wonderful day that won't soon be forgotten when the campers return to their suburban setting where the air is not nearly so clean...the trees not nearly so abundant...the wildlife not nearly so prevalent. And...in case the children don't happen to mention it...they "learned" a whale of a lot.

FORM# 10

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

HOW THE OUTDOOR EDUCATION PROGRAM DEVELOPED

During the 1968 school year, the Lindbergh Board of Education decided to make Outdoor Education an integral part of the elementary school curriculum for the fifth grade. A committee, under the direction of Dr. Elma Armistead, Assistant Superintendent for Curriculum and Personnel, was formed to study existing programs and facilities.

A study group consisting of administrators and fifth grade teachers met during that school year to formulate goals and objectives for the program. It was the consensus of the group that:

(1) the curriculum should be nature-oriented and include activities which could not be adequately taught in the classroom

(2) areas of study should include forestry, conservation, soils and geology, animal study, group living, fishing, physical education, art and music.

(3) a site with natural resources sufficient to meet the needs of the program should be located whthin a 100-mile radius of the school district

(4) the writing of curriculum should be a cooperative effort of students, teachers and administrators

(5) a research library should be set up exclusively for use for the Outdoor Education Program. The materials should be housed at the camp site and should not be available for use in any other situation.

(6) a pilot program should be held as soon as the program could be formulated and a site available.

Subsequently, a committee consisting of Mr. Eugene Souders, Mr. Ned Day, Mrs. Mary Clyburn and Mrs. Ruth McKee was appointed to visit available campsites in the area. After visits to several facilities in the area, the committee recommended that Camp Mo-Val at Union, Missouri, was the facility that would must adequately meet the needs of the program as planned by the Lindbergh District.

The location was approved by the Board of Education and plans for a Pilot Program for the spring of 1968 was begun with Concord, Dressel and Fenton schools volunteering to participate.

Mr. Willis R. M. Schott, Assistant Superintendent in Charge of Building and Grounds, an enthusiastic naturalist, volunteered his assistance to help develop the program, and was appointed director. Dr. Sanford Pridy, Assistant Superintendent in charge of Instruction, directed the program for recruiting counselors from Lindbergh High School.

Planning and implementation of the program was done in curriculum and staff meetings and involved all personnel who were involved with the Program. Grateful recognition should be given to the following people who assisted in developing the first year program:

(a) All 1968 fifth grade teachers
(b) Elementary specialists: music, art, library, p.e., nurses
(c) All elementary principals
(d) Specialists and educators connected with other school systems and state and federal agencies

The Outdoor Education Program is now in its 6th year - the curriculum and operating procedures are reviewed and revised yearly. It has become a comprehensive program which contributes to the overall objectives and needs of the students in the Lindbergh School District.

Form # 12

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

STUDENT COUNSELORS AT CAMP MO-VAL

An Article from the Lindbergh Newsletter
Published by the Board of Education
October 1972

Did you know that fifth graders are not the only ones who take pleasure in the district's outdoor education program? Oh yes, many a teacher and administrator has enjoyed the experience at Camp Mo-Val near Union, Mo. But there's another important group of volunteers who relish the experience and play an important role in the operation of the outdoor program.

They are the high school students who serve as counselors each year.

Although all fifth grade students have the opportunity to attend camp, the counselors must meet certain requirements and/or be recommended by their high school counselor. Of the nine student counselors at camp one recent week, several had participated previously and all hoped to come again.

"I didn't get to come as a fifth grader," one counselor said, "so I took this opportunity to come when I got to high school." "My friends told me about the program," another said, "and they were right - I love it." "I really like kids and when I had the chance to be a counselor I jumped at it." And another - "What do I like about camp? EVERYTHING!"

The high school boys and girls live and work with the younger children, hiking through the woods on tree-stumping expeditions, helping bait hooks for the novice fishermen, scooping eggs, algae and sundry finds from the lake waters for study in the laboratory, demonstrating the proper use of the microscope, pointing out characteristics of the variety of trees and flowers in the woods, leading games and athletic competitions.

Every other night the counselors are free from 9 to 11 o'clock, and may catch up on some school work they brought along.

Each counselor has from seven to 14 children in his charge and "at night it gets pretty harrowing trying to get them all to go to sleep on time," one counselor commented. "I use the threat of 'no sleepy, no fishy,' and that works pretty good," another chuckled. But in spite of the holdouts at bedtime, the counselors seem to enjoy their responsibilities. They all share two basic interests - kids and the out-of-doors.

Some of the high school student counselors heard about Mo-Val from their younger brothers and sisters who attended as fifth grade students. Many relate well with the elementary set because they've worked in other camping programs, through the Y or scouting, or because they have brothers and sisters at home.

Counselors share quarters with their assigned children and are readily available to remind the fifth graders of the tasks at hand. Each cabin undergoes daily inspection and students vie for the awards. Points are given for numerous camp activities, and citations go to the top-scoring boy and girl each day.

In the dining hall counselors head their respective tables, over-seeing the duties of the student hoppers and gently reminding "you're killing the fairies" when a youngster forgets and eats with elbows on the table. As for the food, the younger set says "yummy," the high school students, "great."

There are skits to make up, reports to prepare, research to do and letters to write home. Counselors are always there to urge completion of whatever project is at hand. The elementary children feed the stock, which at the time included some 20 or 30 week-old baby chicks. There are also 12 resident ducks and four geese, plus a large transient flock of wild ducks. And of course, there's Hans, a pet bluejay with a scissor bill. Hans was raised in town by Watson physical education instructor Donald Masker and now flies free

Form # 13

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

STUDENT COUNSELORS AT CAMP MO-VAL

An Article from the Lindbergh Newsletter
Published by the Board of Education
October 1972

about the camp site. Herman the watersnake is a factor to contend with because he helps himself to fish that are being kept in the live net.

In addition to the scheduled studies, there are special events such as picnics or maybe the felling of a dead tree. The program is planned as an educational study of nature and even the downing of the tree provides a learning situation. The entire population of the camp trooped through the woods to the site and each group of children had to write down their estimates of the diameter, circumference, age and height of the tree. They were also to guess where the top of the tree would fall.

Willis Schott, camp director, tore huge sections of brittle bark from the 25-foot oak tree, exposing an infestation of bugs, and the camp's caretaker, Earl Fritsch, proceeded to use a power saw to bring the tree down. The youngsters then inspected it, counting the growth rings to arrive at its age, feeling the weather worn bark, observing the former abodes of a squirrel and a woodpecker. The tree was about 85 years old, Mr. Schott confirmed later. As the group wended its way back to camp, a counselor plucked a growth of moss from a tree and a fifth grader spotted a frog in the grass. They shared the enjoyment of the moment, and the woods and life about them.

High school sophomore Steve Schiller has served as a counselor two years now. He figures he'll probably come back again next year. "Sometimes I have a little time in the afternoon," he says, "and I take out a rowboat to do a little fishing and enjoy the peaceful setting." One of his fifth graders, Mark Ottenad, says his counselor is "the best one." Little Mark would get an argument on the subject from youngsters of other groups who think their counselor is the "greatest."

Although the counselors offer a variety of reasons why they wanted to participate in the outdoor program, they usually always agree that they like "kids." Ron Nothum, a senior and former Concord student serving his second year at camp, says "It's a real joy sharing the thrill of a kid who sees a snake in the water or discovers a bunch of grub worms under a leaf. Kids will remember these things longer than any of the man-made sights civilization can show them. Most kids just know a few trees and flowers in their back yards. They don't get into the woods much like they do here. Progress is crowding out nature, but when they come to camp, they suddenly are saying, 'Wow, there it is, I read about it in a book.' Now that's really a magic moment, when they get that twinkle in their eyes. And I get repurcussions off them - their enthusiasm and wonder to see. I didn't have the chance to enjoy the woods as a kid myself, so it puts joy in my heart to see them react to deer tracks in the woods and get wide-eyed at the jewel-like fish eggs they've dipped from the pond."

The high school counselors participating in the second week of the fall outdoor education program were: Seniors Paula Gerber, Sue Noe, Ron Nothum and Diane Rohr; Junior Karen Stroh; Sophmores Mike Kaiser, Steve Schiller and Janice Spargo; and Freshman Robert Dunlevy.

This year the spring and fall sessions have been reduced to four instead of five weeks, due to a decline in enrollment at the fifth grade level. The largest single group to attend during the five-day outdoor experience was 141 Concord students, representing all but one of the five fifth grade sections. The other class attended the previous week along with Watson students. Staff members included four classroom teachers, Concord principal, Mrs. Ruth McKee, camp director Willis Schott, a gym teacher, nurse, art teacher and, on Sundays, a librarian and a music teacher.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM #14

DESCRIPTION OF CAMP MO-VAL

August, 1973

CAMP MO-VAL INFORMATION

Camp Mo-Val is owned and operated by the Missouri Conference, United Church of Christ.

Facilities include:

260 acres of land, with four program areas: 1) A Picnic Pavilion, 2) a Pioneer Camping, Tent and Trailer area with central shower and restroom, 3) Camp Tambo, an area providing the United Church of Christ Neighborhood Houses with facilities for a summertime extension of their program, and 4) Camp Mo-Val itself, which is a year-round camp, conference and retreat center.

Camp Tambo has non-winterized facilities for up to about 100 persons. The main conference center area of Camp Mo-Val has winterized facilities for about 140 persons. The arrangements at Camp Mo-Val are such that several groups can be accomodated at the same time, within the total accomodations available.

The Eastern Association Office of the Missouri Conference is located on the property and is located in the lower level of Hilltop Lodge. This office also serves as the management office. Mrs. Eleanore Radloff and R. W. Bizer serve through this office.

The Use of Camp Mo-Val:

Camp Mo-Val is used extensively and almost full time for about nine months out of the year. It is used week-ends with occasional mid-week use during the remaining three months. Camp Mo-Val accomodates hundreds of groups each year, with about five thousand different persons being served by the facilities. This includes some groups that remain only one night and other groups that remain as long as six to ten days. Approximately 65,000 to 70,000 meals are served each year. The facilities are in use over 275 days each year.

Camp Mo-Val is pleased to work with local churches, area groups, conference activities, school groups and others throughout the year.

History in Brief:

Several years were spent in the late 1950's to discover a site in eastern Missouri where the Missouri Valley Synod of the Evangelical and Reformed Church might develop a camp, conference and retreat center. Property was finally purchased about 1959, and the major development on the property was begun in 1961. Development was sufficiently advanced so that in mid-July 1962 the first major program event was possible at Camp Mo-Val.

Since that first phase of development which made possible a variety of program events, additional development made possible such facilities as Camp Tambo, the swimming pool, Red Cedar Lodge, the purchase of an additional 40 acres on the north edge of our property, the building of Hilltop Lodge and office, and the construction of a registration office which also houses a laundry.

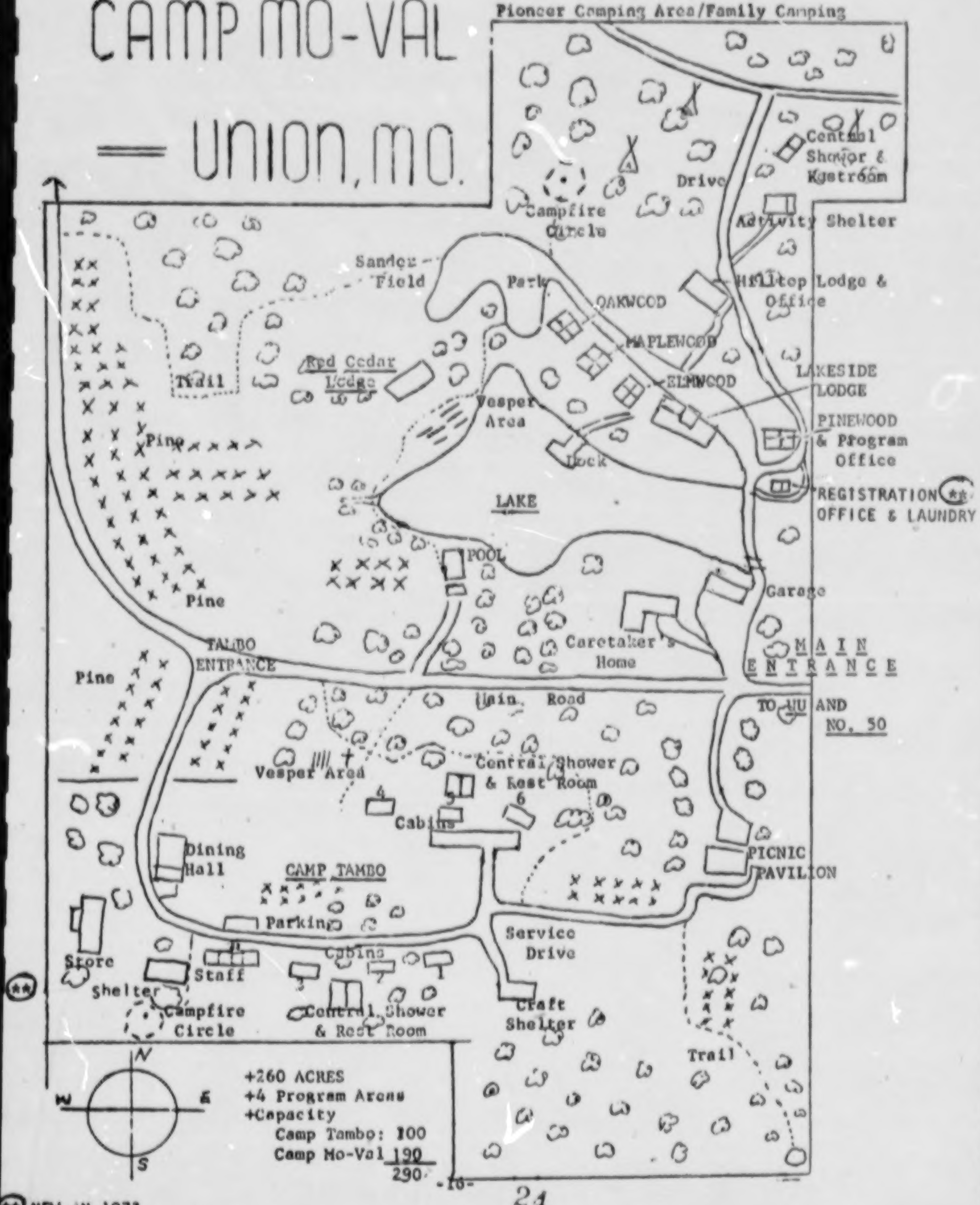
On November 1, 1972, a final payment of $10,000 was made on the bonded indebtedness thus eliminating all debts. Camp Mo-Val, with all of its facilities, represents an investment of slightly more than $300,000.

Personnel:

Mr. and Mrs. Earl Fritsch have served as our resident caretakers for nearly ten years. Mrs. Erna Berger has assumed the position of Head Cook and Kitchen Manager. In addition, numerous part-time workers assist us throughout the year in maintenance and custodial work in the kitchen and dining rooms and with additional areas of need on the camp property.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM 15

CAMP MO-VAL — UNION, MO.


Pioneer Camping Area/Family Camping
Central Shower & Restroom
Drive
Campfire Circle
Activity Shelter
Sander Field
Park
OAKWOOD
Hilltop Lodge & Office
MAPLEWOOD
Red Cedar Lodge
Trail
ELMWOOD
LAKESIDE LODGE
Vesper Area
PINEWOOD & Program Office
Pine
Dock
REGISTRATION OFFICE & LAUNDRY
LAKE
POOL
Garage
Pine
TAMBO ENTRANCE
Caretaker's Home
MAIN ENTRANCE
Pine
Main Road
TO UU AND NO. 50
Vesper Area
Central Shower & Rest Room
4
5
6
Cabins
PICNIC PAVILION
Dining Hall
CAMP TAMBO
Parking
Service Drive
Store
Cabins
Staff
3
2
1
Shelter
Campfire Circle
Central Shower & Rest Room
Craft Shelter
Trail
N
W
E
S

+260 ACRES
+4 Program Areas
+Capacity
Camp Tambo: 100
Camp Mo-Val 190
290

** NEW IN 1973

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 16

WHAT IS AN OUTDOOR EDUCATION STUDENT

A MO-Val Camper is a rare combination of natural freshness, alarming frankness, unpredictable thoughts and actions, tangled hair, boisterous belly laughs, and unbelievable sincerity and enthusiasm.

A Mo-Val-Camper is found everywhere--in cabins, lagging behind on the trail, hanging by his feet in a tree, discussing problems with his counselor on a log, squeezing furry animal necks, running away from camp; and on hot, humid days, hanging affectionately on his counselor.

A camper is innocence with mud on his face, a ball of enthusiasm in T-shirt and jeans, usually has no pencil--a sun-tanned personality with problems.

Just so you remember him every minute of the day, he sings in a high-pitched voice, makes noises like the mating call of a whip-poor-will, flaps his wings in hawk-like fashion, throws a temper tantrum occasionally, playfully pushes his best friend, gets himself stung by angry wasps, or becomes an entanglement of mixed emotions which finds relief in a shoving fight or crying jag.

He likes animals of any size, shape or description; likes thirds at snack time; is early for fishing, to get dressed, to get mail, to be captain of the team and up like an indian or pirate at any time.

He dislikes rest hour, baiting his hook, cold showers, going on another hike, seeing his counselor leave, and letting his pet lizard go at the end of the camp period.

Nobody can spend as much time eating, exploring the creek bed, atguing over who's kicking whom at the table, selecting supplies at the camp store, unpacking clothes, or just sitting around a campfire having a glorious time dreamily singing favorite camp songs.

Nobody can be so illogical at so many times yet so warm and grateful the next minute. Nobody can cry so conveniently and become equally as effervescent when the occasion demands. Nobody can assume the duties of host, hopper and secretary with such a degree of responsibility.

A camper is a magical creature, possessing two arms, two legs, a head and torso, all bursting with the breath of life, all anxious to explore the camp and surroundings, most of which is attempted the first day of camp.

And when the last note of Taps sounds and he's tucked securely under the covers and looking up at you wistfully, there's nothing in the world like the feeling of knowing that this camper is a real friend who wants your guidance and who has spent a truly wonderful day with you.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM # 17

rules...
n' stuff

Form # 18

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TIME LINE

1. Review administrative check list.

2. Principal meet with staff - announce date of encampment and plan accordingly.

3. Send home parent orientation letter to parents.

4. Send home physical form - in progress report at end of fourth grade.

5. Dates confirmed.

6. Principal's meeting with fifth grade teachers, P.E., music, art, librarian and nurse. (Teacher's checklist)

7. New teachers visit site, while program is in operation if possible.

8. Orientation program for children by principal, teachers and nurse. Distribute forms:

   a. Principal's letter Form# 25
   b. Permission and authorization Form# 30
   c. Health information and student identification Form# 31
   d. What to bring Form# 33, 34
   e. How to make simple insect net Form# 38

9. Orientation program for parents.

10. Collect necessary forms - "Permission Slip" Form # 30 ; "Health Inventory", Form # 31 A ; and Health information and student identification Form # 31 .

11. Principal request bus transportation (bus request) - Departure and return (Maximum 2 buses per class). Principal develops bus route for return to individual homes (Maximum 2 buses per class).

12. Make 2 name and bunk tags - made 3" x 10" by children.

13. Begin to collect outdoor education money. Send money to Central Office when collected. Make checks payable to Lindbergh School District.

14. Secretary prepares camp certificates for each student. Form# 504

15. Prepare cabin assignments (one page for all pupils and counselors). Form# 28

16. Principal develops teachers and counselors class schedule.

17. Final meeting with teachers.

Form# 19

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TIME LINE

18. Prepare secret order packet for children:

    a. Stamp top envelope with secret order stamp, child's name and bus number.
    b. Bunk tag
    c. Cabin and bunk assignment Form# 28
    d. Camper's instructions Form# 93
    e. Toiletry regulations Form# 51

19. Prepare secret order packet for director, teachers and counselors:

    a. Envelope (9 x 12) with secret order stamp, name and bus number.
    b. Cabin and bunk assignment.
    c. Camper's instruction.
    d. Toiletry regulations
    e. Route sheet to Camp Mo-Val
    f. Daily schedule - Form # 77
    g. Job description and assignment - Form # 78
    h. Counselor's schedule
    i. Teacher's schedule
    j. Bus route return
    k. Cabin locations
    l. Map of Camp Mo-Val
    m. Dining chart and scheduled meeting places
    n. Name and bunk tag

20. Final communication to parents.

    1. Children taking medicine
        a. Mark clearly with child's name and school
        b. Instructions on time and dosage
        c. P.R.N. medication for children with allergies
        d. Medication will be collected on Sunday when children arrive

    2. Go over checklist carefully on "What to Bring". (Put checklist in luggage)

    3. Report to ____________ School on Sunday afternoon no later than 2:00 p.m.
    Bring pencil or pen
    Each child will be issued name tag and secret orders.

    4. Children will be returned to their homes from Camp by 1:30 p.m. on Friday

    5. Please call me if you have any questions. (__________)

    Parents:
    P. S. Don't forget to write.

Form # 20

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TIME LINE

21. Principal's final talk to children.

22. Prior to Sunday departure

    a. Rest room break
    b. Collect medicine
    c. Give out name tags
    d. Give out secret orders to be opened upon arrival at camp) For each
    e. Give out trip logs) bus

SEE DAILY SCHEDULE FOR CAMP MO-VAL

TEACHER SCHEDULE

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FALL/SPRING

Form #21

DATE	SCHOOL	TEACHER	ENROLLMENT BOYS GIRLS	P.E. TEACHER	ART TEACHER	MUSIC TEACHER	LIBRARIAN	MO. CONSERV.	NURSE	PRINCIPAL
		Total								
		Total								
		Total								
		Total								

TOTAL

Form 22

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Administrative Duties

I. Principal's Preparatory Checklist

  A. Forms to Parents

    1. Subject: Information Letter - Principal's Letter - form#25
    2. What to bring - form#33,34
    3. Permission and Authorization - form#30
    4. Health Information and Student Identification Form - form#31
    5. How to Make Insect Net - form#138

  B. Teacher's Check List form#26

  C. Meeting With Parents of Campers

  D. Prepare Stamped Top Secret Order Packet for Children

    1. Envelope (9 x 12) with Secret Order Stamp, Child's Name and Bus Number
    2. Bunk Tag
    3. Cabin and Bunk Assignment on one sheet #28
    4. Camper's Instructions #93
    5. Toiletry Regulations #51

  E. Prepare Secret Order Packet for Director, Staff

    1. Envelope (9 x 12) Stamped Top Secret, Name and Bus Number
    2. Students Cabin and Bunk Assignments on one page
      a. Assign teachers to cabins 1, 3, 5, 7, 9, 11 and Red Cedar
      b. If necessary, assign counselors to 3 and 5
      c. Assign student counselors to all other cabin groups
      d. According to teacher's information of number of boys and girls
      e. According to teacher's suggested groupings
      f. Important to assign sleepwalkers and bedwetters (from nurse's data) to lower bunks
    3. Camper's Instructions
    4. Toiletry Regulations
    5. Daily Schedule - form#77
    6. Job description and assignment - form#78
    7. Counselor's schedule
    8. Teacher's schedule
    9. Bus Route Return
    10. Cabin locations
    11. Map of Camp Mo-Val
    12. Dining chart and scheduled meeting places
    13. Name and bunk tag

  F. Develop a Bus Route on the basis of a maximum two buses per class, for return of all students to their individual homes (assign a different color and/or number designation)

  G. Request transportation for departure and return (maximum of two buses per class)

H. Have each student make a NAME TAG to be worn at all times at camp. Minimum size 3" x 10"

   1. Student's name to be printed in large easily read letters and may be decorated
   2. School initial to be printed in corner.

I. Put Student's Name, School and week of_____to_____on Certificate o Satisfactory Completion. form#504

J. Prepare Teacher's Class Schedule

K. Prior to preparing for schedule, meet with counselors and develop a class schedule to meet your needs and their interests!

L. Prepare Counselors Class Schedule

M. Send Camp Fees to Central Office

N. Give Counselor:
   Counselor's schedule
   Copy of Students' Top Secret Orders
   Trip Log form#68,69,70,71

II. Departure Procedure - Sunday

A. Supervise loading of luggage as students arrive

B. Give driver route sheet (containing emergency phone number of Camp Mo-Val and garage mechanic) form#67

C. When all students have arrived, assemble with classroom teacher
   1. Have restroom break
   2. Return to classroom
   3. Distribute trip log
   4. Put on name tag
   5. Hand out sealed TOP SECRET ORDERS with instructions:
      DO NOT OPEN until arrival at camp

D. Collect all prescribed medications

E. Students and counselors board bus (not before 2:30 p.m.)

F. LEAD THE PARADE - controlling speed, ready to run to assistance

III. At Camp

A. Upon Arrival at Camp

   1. Open Top Secret Orders
   2. Unload upon direction of Camp Director
   3. Everyone assemble according to cabin numbers
   4. Walk across dam by cabins and unpack
   5. See that cabins are identified

B. Give Secret Order envelope to director including camp certificates

C. Give nurse secret order envelope, medication, and health forms

D. Distribute table numbers and mark number of occupants at dining room tables

E. Follow Sunday schedule

F. Meeting with Camp Director, teachers and counselors

IV. Assigned Principal (one who stays with the Outdoor Education Program for the week)

A. Principal supervises Bell Ringers and Hoppers who serve in their preparatons for every meal

B. The prinicpal distributes evaluation sheets to teachers and counselors and collects them daily when finished. He keeps a record so that he gets sheets from all teachers and counselors for their different activities. Distribute student and teacher material on Sunday night or pre-camp at school for their job assignments.

C. For every two hour activity, the principal sees that every teacher, counselor and child arrives at the assigned stations A, B, C, D, E.

D. The principal assists groups in procuring equipment.

E. The principal may be called upon for assistance by the Camp Director during the two hour sessions.

F. The principal assists the Camp Director during the 11:00 a.m. activities on Tuesday, Wednesday and Thursday.

G. The principal visits cabins during the rest hour.

H. The principal helps supervise activity led by the P. E. instructor at 4:00 p.m. every day.

I. Every night after lights out, the principal visits the cabin areas to see that lights are out and that everything is quiet.

J. Every night the principal supervises teachers and counselors according to the Camp Director's schedule.

K. The principal assists the Camp Director with Friday morning's special activity.

L. The principal supervises the loading of buses on Friday morning.

M. The principal gives each driver a list of children and where they live.

N. The assigned principal or nurse inspects each cabin with a representative of the camp staff to see that all camp areas are clean and that nothing is left behind.

O. The assigned principal follows the last bus back to the Lindbergh School area on the trip home.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION **FORM# 25**
Principal's Letter

Dear Parents:

The Outdoor Education Program will be a new experience for your child. Some children may have participated in other camp programs, but the educational activities planned for your child will provide many new and exciting experiences for him.

In order to cover the expenses of the program, it is necessary to charge a fee of $26.00, which covers lodging, meals (from Sunday supper through Friday lunch), insurance and transportation.

Checks should be made payable to the Lindbergh School District and should be given to the classroom teacher on Monday, two weeks prior to the departure for camp.

Students will report to their school at 2:00 p.m. on Sunday of the designated week. They will be delivered by school bus to their home on the following Friday between 1:00 and 3:00 p.m.

I would like to suggest that all parents write letters to their children early during the week they are at Camp Mo-Val. The local address is as follows:

Child's Name
Camp Mo-Val
R. R. #1
Union, Missouri 63084

Camp Mo-Val's telephone number is 1-583-3852. We ask parents not to call their child unless it is strictly an emergency. In case of an emergency, parents will be contacted directly by camp officials.

Please complete and return the enclosed permission slip and health information form.

Further questions may be directed to me at

Or to the Camp Director, Mr. Willis Schott at 842-3800.

Sincerely yours,

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 26

Teacher's Pre-camp Form Check List

Teacher____________________ School________________

Boys and Girls	Principal's Letter #25	Permission Slip #30	Health Information #31	What to Bring #33, 34	Top Secret Orders env.	Simple Insect Net #138	Let's Pretend #142, 146	My Personal Meas. #141	Name tag completed #32	Medications	Fee receipt	Cabin assigned #28
Date sent												
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
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32												
33												

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Scheduled Activities for Teachers

Form # 27

Leader	Mon. a.m.	Mon. p.m.	Tues. a.m.	Tues. p.m.	Wed. a.m.	Wed. p.m.	Thurs. a.m.	Thurs. p.m.	Friday

Group	Cabin
A	1, 5, 9, 13
B	2, 6, 10, 14
C	3, 7, 11, 16
D	4, 8, 12, 15

Activity Key
1. **General tour**
2. **Rotten log and stumping (Pencils)**
3. **Tree identidication (Pencils)**
4. **Arts and crafts**
5. Lake (plant and animal life) **(Boots)**
6. Fishing
7. Soils and geology **(Pencils)**
8. Recreation

In each square you will find listed first the activity number, then the group letter. If this number and letter are circled you are an assistant resource teacher.

Scheduled Activities for Counselors

Counselor	Mon. a.m.	Mon. p.m.	Tues. a.m.	Tues. p.m.	Wed. a.m.	Wed. p.m.	Thurs. a.m.	Thurs. p.m.	Friday

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
CABIN ASSIGNMENTS

FORM# 28

Week of________________ Boy's Cabins:______________ Girl's Cabins:______________

Cabin 1

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 2

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 3

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 4

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 5

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 6

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 7

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 8

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 9

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 10

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 11

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 12

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 15

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 16

1.
2.
3.
4.
5.
6.
7.
T/C . . . .

Cabin 13A

1.
2.
3.
4.
5.
T/C . . . .

Cabin 13B

1.
2.
3.
4.
5.
T/C . . . .

Cabin 14A

1.
2.
3.
4.
5.
T/C . . . .

Cabin 14B

1.
2.
3.
4.
5.
T/C . . . .

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 29

APPLICATION FOR CHARTER BUS FOR
FIELD TRIP

SUBMIT IN DUPLICATE TO CENTRAL OFFICE

One week in advance

DATE OF TRIP ______________________ Number of Buses required ________

SCHOOL ______________________ DESTINATION ______________________

Buses to arrive at school for loading at ______________ AM/PM

Will return to school by ______________ AM/PM

Nature and purpose of trip: ______________________

____

Number of students ________. Grade ______.

Permission slips have been signed and are on file in Principal's office for all students making trip.

____
Accompanying Sponsor/Teacher

____
Today's Date

____
Principal

• •

To be filled in by Teacher or Accompanying sponsor and returned to Principal's Office:

Driver's Name ______________________. Bus # ________.

Conduct of driver was satisfactory - unsatisfactory.

If unsatisfactory, please explain: ______________________

____

Returned to school at ______________ AM/PM.

____
Signature

Form 30

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

PERMISSION SLIP

Please complete the following permission slip for your child to attend the Lindbergh School District Outdoor Education Program.

Students will report to their individual schools on Sunday at 2:00 p.m. of the designated week. Students will be delivered to their homes by school bus on the following Friday between 1:00 and 3:00 p.m.

The health and safety of our students during this outdoor experience is of prime importance to us. However, with precautions,accidents or illnesses may occur. In such cases it is our policy to contact the parents. Occasionally a delay because of inability to reach the father or mother might be detrimental to the child. In order that the responsible individual may have authority to take immediate action if deemed necessary, we request that you sign the permit below. Please be assured that every effort will be made to contact you first, and this permit will not be used except under unusual circumstances.

- -

I give permission for ______________________________ to attend Camp Mo-Val
Name of child

during the period from _________________________ to _____________________.

I authorize a member of the camp administrative staff to transport my child to the nearest doctor in Union, Missouri, or hospital in Washington, Missouri, and to hospitalize him for emergency treatment if necessary. I authorize the physician to carry out any diagnostic procedure or emergency care in the treatment of my child.

Signed ____
Parent's signature

Address ____

Telephone ____________________

Date ____________________ School ______________________________

Form# 31

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

HEALTH INFORMATION

Information furnished will assist us in caring for your child at camp.

Student name____________________ Birth Date__________

School -- C Cr D F G K L S W Teacher____________________

Father/Mother name______________________________

Address____________________________________

Home Telephone________________ Father/Mother work phone__________

Completed at camp: Cabin________________ Bunk#____________

1. Any allergy which might affect your child at camp? Yes____ No____
   If so, what?
2. Unusual susceptibility to poison ivy? Yes____ No____
   If so, we suggest you send your doctor's prescribed medication.
3. Recently exposed to any communicable disease? Yes____ No____
   If so, what?
4. Enuresis (bed wetting)? If so, be sure to discuss this with the school nurse, and send one extra set of sheets Yes____ No____
5. Other helpful information, such as sleepwalking, constipation problems, particular fears, etc. about which you feel the nurse should know.

____

____

6. Month and year of last tetanus shot____________________
7. Is menstruation established? Yes____ No____
8. Should medicine be taken while at camp? Yes____ No____
   If yes, write specific instructions here for administering it:

All medicine must be checked in to nurse. Be sure it is clearly labeled with your child's name. If explicit directions are not given, it will be necessary for the nurse to call you collect from camp.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 31 A

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
LINDBERGH SCHOOL DISTRICT
4900 South Lindbergh Boulevard
St. Louis, Missouri 63126

FORM# 31A

Health Inventory

To Parent:

The St. Louis County Medical Society recommends all children have a complete physical examination upon entrance into school and at the beginning of the fifth, seventh and tenth grades.

Please complete this form and return to the school your child is attending.

Student's Name ____________________

Address ____________________

Home Phone ____________ Birth Date ____________

Father ____________ (First Name) Mother ____________ (First Name)

____
Last Name if different from Student's

Bus. Phone ____________ (Father) Bus. Phone ____________ (Mother)

School Attending ____________________

Grade ____________ Teacher ____________

Family Physician ____________________

Family Dentist ____________________

OUTDOOR EDUCATION FORM 31 A (Personnel Form 25) N/A

MEDICAL HISTORY: To be completed by parent or doctor.
(Please give dates)

Chicken Pox ____________ Polio ________________

Measles ________________ Rheumatic Fever _________

Measles, German _________ Whooping Cough _________

Mumps ________________ Other ________________

(Please check)

Congenital Heart _____________

Tuberculosis Contact ___________

Allergies ___________________

Other pertinent history ___________________________

IMMUNIZATIONS & TESTS: (Please give dates)

*Smallpox vaccination _____________ Scar _________

Smallpox revaccination _____________ Scar _________

*DPT Series _____________ Last Booster ___________
Year Year

*Polio Innoculation:
(Salk: 1____ 2____ 3____ 4____ 5____
(
(Sabine: 1_______ 2_______ 3_______

Measles Innoculation _____________

Tuberculin Test ____________ Result ____________

Vision Test ________________________________

*These are required by state law.

PHYSICAL EXAMINATION: To be done by physician.

Height _________ Ears _________ Lymph Glands ______

Weight _________ Eyes _________ Hernia __________

Nutrition _______ Pulse _________ Orthopedic _______

Skin & Hair _____ B. P. _________ Posture __________

Teeth & Gums____ Lungs _________ Other __________

Nose __________ Heart ___________________________

Throat _________ T & A ________

Tonsils enlarged ________ Tonsils diseased __________

Details on all positive findings ____________________

____

____

____

Recommendation for Correction ___________________

____

____

____

Should physical activity be restricted?

NO_______ YES_______ If yes, specify degree and length of time _____________________________________

Date ___________ ______________________M.D.

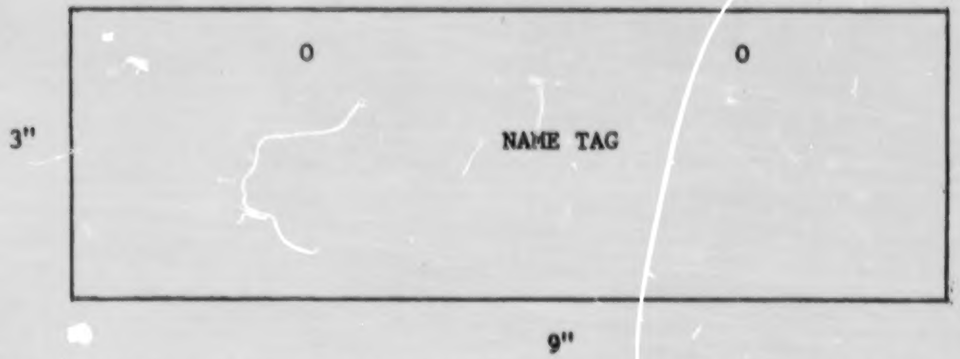
(Continue on next page if necessary)

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 32

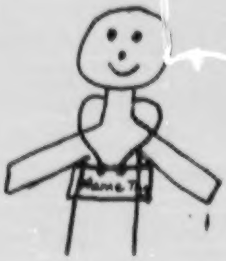
NAME AND BUNK TAGS

Make name tags and bunk tags from white vinyl material.

1. Name tags should be approximately 3 x 9 inches.



Punch 2 holes on horizontal side of name tag. Thread string through holes, make loop (large enough to go over head) and tie string. Loop will be placed aroung neck as per illustration below----



2. Bunk tag should be approximately 3" x 5".

Use black magic marker to write names on tags.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form #33

What to Bring

Clothes for camp should be comfortable and practical. Laundry facilities are not available for campers, therefore, sufficient clothing for the week (Sunday through Friday) should be brought along.

Some form of identification should be put on all clothing and other personal belongings. You may use a printed name tag sewn in the clothing, a name stamp, a clothing marker pen or any other method to put the student's name on each article taken to camp. Luggage must be marked with the child's name, school and teacher. We recommend duffel bags, no foot lockers, please. The school cannot be responsible for the lost articles.

A. ESSENTIALS	Packed at Home	At Camp	(Check)
2 Single or twin sheets			
1 Pillow Case			
1 pr. Pajamas			
Shower Cap (Girls)			
2 Towels (Bath)			
2 Washcloths			
1 Lightweight Sweater (Sweatshirt)			
1 Heavy Sweater or Jacket			
Cap or Headscarf			
Raincoat (Poncho)			
Rainhat			
1 pr. Rubber Boots or Galoshes			
1 pr. Sturdy Walking Shoes			
1 pr. Sneakers or Tennis Shoes			
5 or 6 changes of outer clothing (include: 2 pr. slacks to protect legs and 1 long sleeve blouse or shirt)			
Slacks			
Blouse			
5 or 6 pr. socks (Heavy & Light)			
4-6 Complete changes of:			
Underwear tops			
Underwear bottoms			
Handkerchiefs			
Toothbrush			
Toothbrush holder			
Toothpaste or powder			
Comb			
Brush			

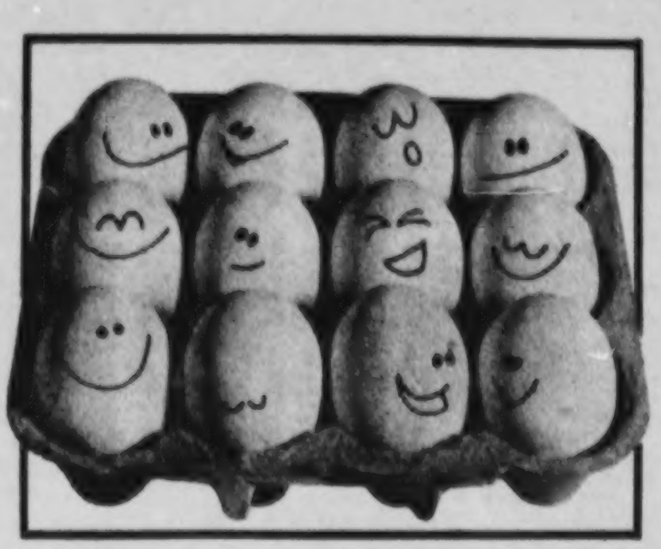
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 34.3

at to Bring (Continued)	Packed at Home	At Camp (Check)
Soap		
Soap Container		
Plastic Drinking Cup		
Tape Measure (1 yd. cloth)		
Stationery		
Stamped Envelopes		
Ballpoint Pen & Pencils		
Flashlight (Name) with fresh batteries		
Laundry Bag		
Plastic Bags (Baggies - Large Size)		
. MEDICINE		
Dr. Prescriptions ONLY (Must be left with nurse)		
. THE FOLLOWING EQUIPMENT IS OPTIONAL:		
Small box Kleenex		
Bathrobe		
House Slippers		
Camera (Inexpensive)		
Film		
Binoculars		
Rod & Reel (if encased)		
Compass		
Liquid Insect Repellent (no aerosol)		
Suntan Oil or Lotion		

. DO NOT BRING OR SEND

- Money
- Gum
- Candy or any Food
- Radio or TV
- Swimming Suit
- Tennis Racquet
- Record Players
- Tape Recorders
- Sleeping Bag
- Alarm Clocks
- Gun
- Pocket Knife
- Hatchet
- Expensive Jewelry
- Bug Bombs or Aerosol Bombs

Form # 35



counselors

...the 'good eggs' who make the difference

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM # 36

Dear Leader-To-Be:

Before long you will begin an experience that is both difficult to explain and hard to visualize -- it can only be experienced. Literally, it will last only a week, but figuratively, it will last you a lifetime. Words cannot express the joys, the fears, the frustrations -- yet the enlightenment and satisfaction that will be yours as a high school leader.

You will be: "Guidance counselor, teacher, coach, social host, psychologist, sports authority, arbitrator, conservationist, story teller, folk singer, song leader, forest ranger, craft specialist, philosopher, and act as a father or a mother to each child in your cabin."

You need not be afraid of this forthcoming role of leader. It will be a real challenge and a very real responsibility. The leader who can place the camper's well-being and happiness above his own particular interests will be the leader who will be filled with contentment for having done a fine job.

The first requirements for this unusual undertaking are an appreciation and love of the out-of-doors, a concern for conserving our natural resources, and an earnest desire to work with and help fifth graders.

Having completed the above requirements you are now ready to delve deeper into Lindbergh School District's Outdoor Education Program which is available to all fifth grade students, (a new type of learning experience where direct supervision is essential). Material presented in this booklet has been developed to assist you in your important role of "being number one" counselor to your cabin group! Your contribution this week reflects upon you as an individual, "the teen-agers," and as a representative of Lindbergh School District.

Outlined for you are: Camp Mo-Val facilities, some class material, the week's tentative schedule, your share of responsibilities and duties in working with Principal, Teachers and students, "What To Bring," "Trip Log," "Campers Job Description," "What is a Camper," and "What is a Leader!"

Hopefully this is a booklet that you can use -- one that will be of help to you, and in turn, to your campers.

Congratulations on being chosen!

Best wishes for a very successful and rewarding experience. I look forward to your arrival.

Sincerely,

Willis RM Schott..

Willis R. M. Schott
Director

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM#37

APPLICATION AND INFORMATION BLANK FOR CAMP COUNSELOR

SPRING, 19__
OR
FALL, 19__

NAME ______________________ GRADE _____ DATE __________

ADDRESS ______________________ TELEPHONE __________
(Street) (Zip)

EMERGENCY (Person) __________________ (Telephone) __________

School camp sessions are a week in length. If you are chosen, you will be needed from Sunday, 2:00 p.m. until Friday, 3:30 p.m.

Camp dates: (Circle the dates you are NOT available)

SPRING or

FALL

YEAR: 19__

Mark the following according to your interest and knowledge. Rating scale: 1(high), 2(medium), 3(low)

	Interest	Knowledge		Interest	Knowledge
Trees	____	____	Astromony	____	____
Soils & Geology	____	____	Animal Life	____	____
Pond Life (Biology)	____	____	Plant Life	____	____
Arts & Crafts	____	____	Skits	____	____
Archery	____	____	Singing	____	____
Fishing	____	____	Campfire program	____	____

Do you have special interest or experience in the following: (music, Astromony, campfires, drama, other) ______________________

____

List your current academic program:

FALL			SPRING		
Period	Course	Teacher's Signature	Period	Course	Teacher's Signature
1	______	______	1	______	______
2	______	______	2	______	______
3	______	______	3	______	______
4	______	______	4	______	______
5	______	______	5	______	______
6	______	______	6	______	______

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

APPLICATION AND INFORMATION BLANK FOR CAMP COUNSELOR

Form # 38

What previous camping experience have you had? Name of camp, dates,

role as camper or ____

____

____

____

____
Student Signature

To Parents:

In case of a serious accident or acute illness we will need your permission to secure immediate treatment. Please be assured that every effort will be made to contact you first, and this permit will not be used except under unusual circumstances.

- -

I hereby authorize any member of the camp administration staff to transport my (son) (daughter), ________________________ to the nearest doctor in Union, Mo. or hospital in Washington, Mo., and to hospitalize (him) (her) for emergency trearment if such action is deemed necessary in the judgement of the person in charge. Furthermore, I authorise the physician or physicians to carry out any diagnostic procedure or emergency care pertinent to the immediate injury or illness that is deemed imperative in (his) (her) treatment.

Parent______________________________ Address ____________________

Home Phone _______________ Business or Alternate Phone _______________

_________________________ ____________________________
Date Parent's Signature

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM # 39

RESPONSIBILITIES
OF THE
CAMP MO-VAL COUNSELORS

SPRING, 1973

LINDBERGH SCHOOL DISTRICT
4900 S. Lindbergh Blvd.
St. Louis, Mo. 63126

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 40

I. Responsibilities on Trip to Camp Mo-Val

A. Report to school principal and classroom teacher

B. Place your baggage aboard bus

C. Assist with tagging luggage and boarding bus

D. Escort pupils to wash room

E. Assist faculty members in seating children on bus

F. Seat yourself "strategically" on the bus (where you can assist teacher in directing activities)

G. Assist children in locating and pinpointing points of interest along the way

II. Responsibilities Upon Arrival at Camp Mo-Val

A. Remain on bus until director gives brief orientation

B. Assist with luggage loading on tractor trailer

C. Check your cabin members and take them to the cabin

D. Unpack bags (counselor will use top drawer--cabin mates will share other 3 drawers)

E. Check bunk assignments--explain, demonstrate, and practice making bed

F. Conduct a brief tour of the immediate cabin facilities

G. Get acquainted:

1. Make name tags immediately

2. Attempt to find out their specific interest and hobbies

3. Be friendly

H. Acquaint youngsters with assigned responsibilities (this information will be provided)

III. Responsibilities During Week

A. Cabin area

1. Supervise clean-up time

a. Cabins

b. Surrounding grounds area

2. Be in cabin area when children are present to see:

a. That children are quiet at specific times

(1) Rest period after noon

(2) 9:30 p.m.

(3) Shower time

b. That order is kept during free times

3. Check your cabin members before breakfast--(i.e.--personal appearance of children--clean face, combed hair, change of socks and underwear, etc)

B. In the dining hall

1. Join in all activities enthusiastically to thus encourage childrens' participation
2. Lead conversation toward coming events of day's program
    - a. To keep conversation centered on program
    - b. To reduce extraneous noise in dining hall

C. Health and safety

1. Check childrens' health
    - a. Report any illness to nurse camp director
    - b. Know where first aid room is located
2. Children may not go barefoot
3. See that children dress for weather (raincoats and caps, etc.)
4. Inform children to stay with group in class unless they have permission from teacher in charge (it is necessary for safety that someone else always knows where children are to be found)
5. In case of fire counselors will lead their groups to a safe distance and remain together
6. Children are not to go to the lake except when accompanied by a counselor
7. Inspect group for cleanliness and grooming
8. Refrain from making negative remarks concerning food, etc. in presence of children
9. Never leave general camp area on a trip without permission from director
10. Be alert concerning the general health of the children:
    - a. Appetite, regularity of bowel movements, fever, headache, sore throats, and other conditions such as cuts, abrasions, sprains, bites
11. Each youngster should go to rest room before each activity
12. In an emergency situation (restroom) while on activity the counselor will return with the youngster after checking with the teacher

IV. Responsibility for Setting a Good Example

A. Practice courtesy

B. Receive all visitors courteously and make sure their presence is known by the camp director

C. No counselor or student is permitted to leave camp at any time

D. Alcoholic beverages and narcotics are strictly prohibited--violations will result in immediate termination of your services and appropriate disciplinary action

E. No smoking is permitted by students or counselors

V. Responsibility for Informing Camp Director

A. Any unusual circumstance or condition existing in camp

B. Bring to the attention of the camp director any malfunctioning facility, needed repairs, exhausted supplies, equipment needs, or medical problem

C. Report student behavior difficulties to faculty supervisor

VI. Responsibilities for Educational Session

A. Accompany your group to the proper classes--(be on time)

B. Listen carefully to the class instructor in order that you may reiterate, clarify, or direct the children in following these instructions.

C. Children may ask you questions concerning their activities--use the technique of answering a question with a question. ("What is this?", "What do you think it is?", "What can you tell me about it?", "Where do you think we can find additional information about it?")

D. Be aware of the time so that groups can be brought back to the central area at the proper time.

E. A regular review of activities should follow the participation in these activities:

1. Should information be up-dated?
2. How can the experience be improved?
3. Do you feel the activity has merit? Why?
4. What additional items of equipment would be helpful

F. After each day's activities

1. Review the activities of the day
2. Note new ideas, new activities and new experiences of children

G. Assist youngsters with research

H. Assist youngsters with collections and layouts

I. Familiarize yourself with some of the sources (library)

J. Suggest proper source materials to youngsters

K. Assist or direct stunts for cabin groups

L. Count students before, during and after completion of hikes and excursion activities

VII. Volunteer Your Assistance Utilizing Your Past Experience, Interest, and Knowledge

VIII. Responsibilities on Rainy Days

Special programs and activities have been designed for rainy days--this is where creativity, innovation, and ingenuity might well come into play. There are many rainy day ideas and if everyone worked together these days can be fruitful, educational, and lots of fun.

IX. Responsibility for Friday Morning.

A. Pack your own belongings

B. Assist children in packing their belongings

C. Make final check of cabin

X X X X X X X X X X X X X X X X X

Conduct of student counselors should be above reproach at all times--children do not always report to parents accurately.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 44

WHAT IS A LEADER

A leader recognizes each camper as a person, regardless of his experience, school, status, religion, race, size or which team he plays upon.

A leader knows most of the answers, will admit if he doesn't know, and will then seek the answer.

A leader is predictable - that is, one whom can be depended upon all the time.

A leader is one to whom the camper can go when he needs understanding, help and advice.

A leader can show how to do a job without "showing off".

A leader is one whom each camper believes sincerely wants him to succeed and who will be proud of him when he does.

A leader respects all individuals and never corrects or gossips in the presence of others.

A leader knows all that's going on first-hand and turns a deaf ear to gossip.

A leader is extremely sensitive to the pride of others - and is always on guard against hurting others needlessly.

A leader controls his emotions - does not give way to uncontrolled enthusiasm or despair, but moves from day to day on an even keel.

A leader sets the tone. As he moves into the cabin, he has something to say to each camper and makes each one feel he knows and likes him as an individual and person.

A leader builds anticipation for camp fun by referring to what is going to happen... the campers will catch this spirit.

A leader is prompt, encourages thr campers to be prompt, and makes each camper feel "at home" by settling quickly into the routine of chores and necessary activities.

A leader sets the example. Personal neatness and good taste are learned from table manners, dress, tricks of speech and gesture.

A leader takes time to spend a few minutes alone with each camper during the day; keeping in tune with his attitudes and his needs all the time.

A leader respects fellow staff members, grasps any opportunity to learn from fellow counselors and staff members, and share with them his own skills and knowledge.

A leader uses only the rules that are absolutely necessary and explains them quickly and clearly.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 45

HOW DO YOU RATE?

Yes	No	
		1. Have stamina enough to last through a strenuous day
		2. Eat regular, well-balanced meals
		3. Get regular sleep in sufficient quantity
		4. Gain sufficient vigorous exercise each day
		5. Have pleasing and neat appearance
		6. Are clean of person and clothing
		7. Possess graciousness and mannerliness
		8. Use tact (ability to speak truthfully, but without offending or hurting others)
		9. Are cooperative (even when carrying out plans with others)
		10. Are cheerful
		11. Display a sense of humor (even when the joke is on you)
		12. Use acceptable English (without excess slang or profanity)
		13. Express warmth (a good, friendly personality that attracts)
		14. Display poise (even in emergencies or embarrassing situations)
		15. Appreciate the beautiful in deed, music, nature, and literature
		16. Have a love of children regardless of behavior and appearance
		17. Willingly accept hard work (even when it means soiling person and clothing)
		18. Are adaptable (can happily change plans to fit in with others or the weather)
		19. Can "take" as well as "give" orders
		20. Have an interest in a wide variety of fields
		21. Develop a speciality (ability to "do" at least one camp activity well)
		22. Display initiative (ability to get started without outside prodding)
		23. Are prompt at all appointments and in all tasks
		24. Display sense of dependability (do what you say you will when you say you will do it)
		25. Possess persistence (finish what you start as quickly and thoroughly as possible)
		26. Are innately curious (want to know about many things just for the sake of knowing)
		27. Neatness (keep own living quarters neat and clean)

Lindbergh School District

Certificate of Honor

This Certifies That

Has through service as Counselor at Camp Mo-Val

contributed greatly to the welfare of the children.

This certificate is presented as an expression of appreciation for services unselfishly rendered.

Date

President of the Board

Superintendent

Form #47

health services

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 48

DUTIES OF THE NURSE

1. Handle emergencies, first aid, illness, and medication.
2. Collect all medicine from the Counselors upon arrival at Camp. Give medications at meal time from pre-directed spot in the cafeteria, as well as at snack time before retiring at night, or as directed by the doctor.
3. Collect all outgoing mail, count and record, put in mail box on rural route prior to 1:00 p.m.

   At 2:00 p.m. collect Camp Mo-Val mail from rural route mail box, count and record, distribute to students on their bunks.
4. Maintain Mo-Val Olympic score record - Putting first place scores in RED.
5. LIST Camper: Name, School, Group, and Birth date for week Sunday thru Friday and give prior to Monday evening meal to director.
6. With aid of Teachers or Counselors distribute snacks each evening.
7. Inspect each cabin and award the Daily Banner for the cleanest Boys' Cabin and the cleanest Girls' Cabin.
8. Help supervise hoppers.
9. Score SKIT Performances.
10. Score Animal Reports.
11. Inventory medical Supplies - re-ordered as needed!
12. Perform other duties and functions as assigned by the Camp Director.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 49
FIRST AID SUPPLIES

Medical

Alcohol, rubbing compound 70% pint

Ammonia, inhalant capsules, 100 in box

Applicators 6" Q tips with cotton tufts 100 in box

Aspirin tablets 5 gr. bottle of 1000

Bactine, 6 oz. bottle

Bandage roll, elastic, rubber yarn
1/2" x 5 1/2" ds. each
Bandaid plastic strip
2 x 4", 1 x 3", 2 x 2", 3/4 x 1 1/2" box

Calomine lotion 6 oz. squeeze bottle

Cleansing tissue, 2 ply disposable, 200 in box

Cotton balls, medium size 500 in box

Cotton roll sterilized 1 lb.

Cough syrup pertussin or equal 6 oz.

Gauze sterile 1" x 10 yd; 2" x 10 yd;
3" x 10 yd. 100 in box
Hydrogen peroxide 1 pint

Kaopectate 1 pint

Merthiolate, tincture 1 pint

Milk of Magnesia 1 pt. tablet with 1 av.

Mineral oil 1 pint

Oil of Cloves bottle 1 oz.

Pads, sterile gauze 2 x 2" 100 in box

Pads, telfa 3 x 3" 100 in box

Paragoric

Soda bicarb (baking soda)

Solarcaine 4 oz. or equal

Tape, trainers 12" x 10 yds.
Asst. cuts 4 - 1/2"; 3 - 1/2"; 2 - 2"; 1 - 3"

Throat lozenges benzo-troches or equal

Tongue depressors 500 in jar

Vaseline 1 tube 1 1/8 oz.

Other

Clipboard, legal size

Cups, paper drinking

Cups, medicine 1 oz. paper

Emesis basin

Eye cup

Flashlight with 2 fresh batteries

Hot water bottle

Ice bucket

Ice bags (dozen) 9" dia.

Needles and thread

Paper towels, roll

Safety pins, nickel plate brass # 2

Sanitary napkins

Sanitary belts

Scissors (bandage) 7 1/4" angular

Slings

Splints, aluminum (3 assorted sizes)

Splints, yucca wood 3 1/2" x 18"

Square pan

Stretcher

Thermometers oral stubby bulb

Tweezers, slant end 4 1/2" splinter forceps

Wire cutter (small)

Bug repellent

Kleenex

Eye wash

Salt tablets

Nose drops - Neo-Synephrine

Vaperizer

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 50

INSPECTION SHEET DATE ____________________

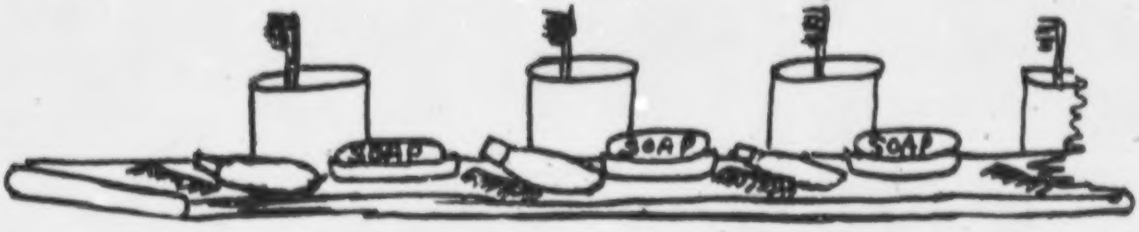
SCORE	1	2	3	4	5
BEDS					
( ) Name tags					
( ) Sheets and blankets pulled tight					
( ) Sheets and blankets tucked in					
( ) Neat and uniform appearance					
( ) Pillows smooth					
FLOORS					
( ) Swept					
( ) Shoes and boots clean and arranged neatly					
( ) Sidewalk clean					
( ) Mats and rugs free of dirt					
( ) Corners spotless					
CLOTHES CLOSET					
( ) Clothes hung neatly					
( ) Clothes hung in uniforn manner					
( ) Shelf neat					
( ) Floor uncluttered					
( ) Overall tidy appearance					
BATHROOM					
( ) Toothbrushes airing and arranged neatly					
( ) Toilet seat and base clean, water flushed					
( ) Wash basins, chrome and mirrors clean					
( ) Towels neat and uncluttered, washcloths hung to dry					
( ) Shelves clean and tidy					
GENERAL CATEGORY					
( ) Chest of drawers dusted and tidy					
( ) Waste cans emptied					
( ) Luggage and personal equipment neat					
( ) Window sills dusted					
( ) Overall neat appearance					
BONUS POINTS FOR EXTRA EFFORT--Credited only once for poems, art work, etc.					

TOTAL ____________________

FORM#51

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

TOILETRY REGULATIONS



Place empty cup on back of shelf

Place toothbrush to dry in cup

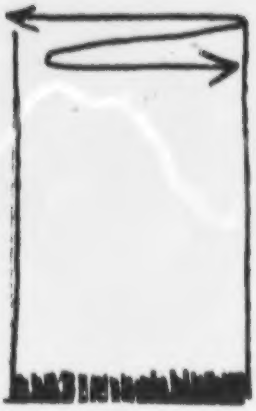
Place tooth paste and comb in front of cup

Put open soap dish on front of shelf

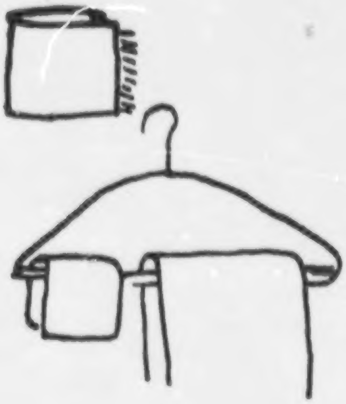
Suggestions:

Identification on:

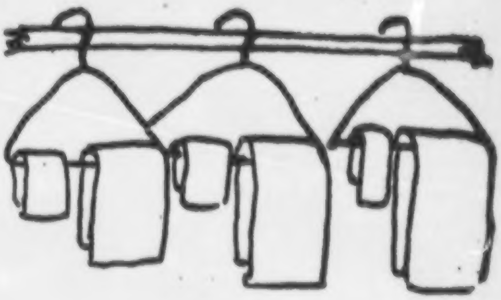
- glass or cup
- shelf edge
- towel bar



Towel to be folded in thirds the long way, then placed over hanger



Washcloth to be folded in half, then placed over hanger



Space hangers on towel bar so that towel and washcloth can dry

JUDGES ____________________

____

____

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

MO - VAL OLYMPICS

Tally Sheet

FORM# 52

DATE ____________________

CABIN NO.:	1	2	3	4	5	6	7	8	9	10	11	12	13		14		15	16	
CABIN INSPECTION:																			
MONDAY																			
TUESDAY																			
WEDNESDAY																			
THURSDAY																			
SUB-TOTAL																			
SKIT NIGHT																			
ANIMAL REPORT																			
QUIZ																			
TREE CUTTING																			
TUG OF WAR																			
ART CLEAN UP																			
TURTLE RACE																			
CROSS COUNTRY RACE																			
NAME TAG																			
GRAND TOTAL																			

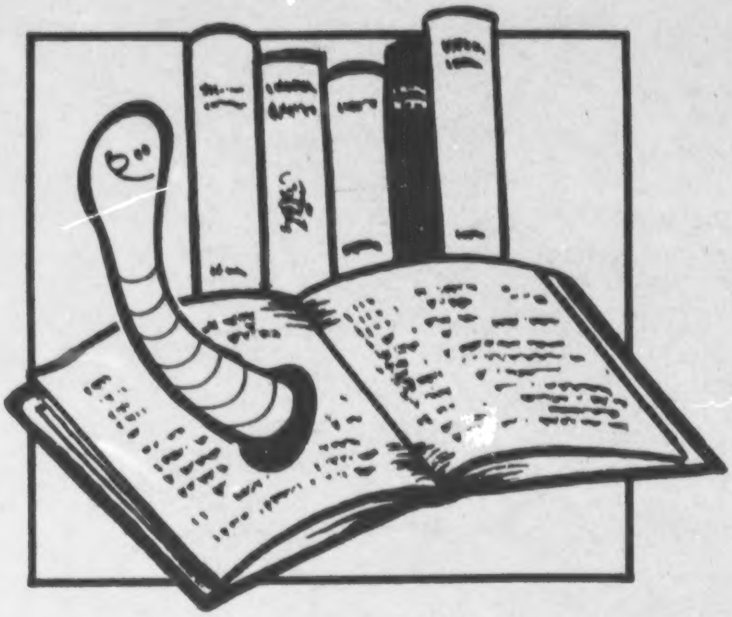
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
SKIT NIGHT TALLY SHEET

FORM#51

		Introduction of title (good name -- loud, clear)	Introduction of players and characters portrayed	Well developed skit (builds to a climax)	Ending	Delivery (loud, clear, expressive)	Smooth performance (no giggling, hesitation, or forgetfulness)	Involves some memory work	"Original" theme	Concerned nature or Outdoor Education	Involves audience participation	Props and co stumes Made at camp?	Total Points
Group	TITLE Possible points	2	4	4	2	3	3	2	2	2	3	3	30
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form #54



library

...a different kind of worm

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM#55

THE LIBRARY GOES TO CAMP

Reprinted from the February, 1970, AMERICAN LIBRARIES

Article by MARIAM PETTER AND LILLIAN BLOOMQUIST

The Outdoor Education Program is part of the educational curriculum for fifth grade students in the Lindbergh School District, which is in a suburban area of St. Louis. It emphasizes those studies in science, nature, conservation and ecology, mathematics, recreation, arts and crafts, and physical activities which can be taught more effectively out-of-doors than in a regular classroom. In establishing the program, the plan was to create the atmosphere of an outdoor laboratory where, through observation and direct experiences, the pupils could develop appreciations, skills, and understandings to supplement the indoor curriculum of the school.

About one hundred children from different schools go to camp for a week at a time, along with their teachers and a principal, and instructors in art, music, physical education, a librarian and a nurse. There is a full-time camp director; and there is a senior high school student as counselor for each group of six children per cabin. To give this opportunity to one thousand fifth graders requires five weeks in the fall and five weeks in the spring. The operational expenses are met by the Lindbergh School District through the support of local taxpayers. No federal funds are used. There is a charge of $26 per pupil for meals, lodging, transportation and insurance, from Sunday evening through Friday noon. The district rents a church camp fifty miles from St. Louis. There are large wooded areas and an eight eight acre lake, which provide wonderful resources for study.

The children have so much fun that even though they are kept on a rigorous schedule of curriculum-related activity, they do not recognize the amount of instruction and lore they are absorbing. Carefully preplanned objectives in reading, creative writing and art, speech and vocabulary building, music, arithmetic, geology and geography, citizenship, and health are pursued through the camp activities.

From the initial planning stages of the Outdoor Education Program in 1967 (the library has been included as an integral part of the curriculum organization). Initially the elementary school librarian was assigned the responsibility for ordering a collection of four hundred fiction and nonfiction books in addition to many pamphlets, leaflets, charts, posters, maps, and worksheets for the vertical file. All of these materials are directly related to the subjects being included in the curriculum, and the librarian works closely with the assistant superintendent in charge of the program in planning for the library. A list of materials by subject is prepared for distribution to all teachers involved in the Outdoor Education Program to acquaint them with the library holdings. Thus, the teacher who is responsible for the geology study, for example, can know exactly what is going to be available to him in this subject area.

The library subscribes to seven nature magazines, has several storytelling and birdsong records, filmstrips, and has access to the film library of St. Louis County Audiovisual Education Department and the State Department of Conservation. One of the acquisitions enjoyed most is the collection of fourteen preserved and mounted wild animals. Each cabin group takes one of these to have in the cabin to help in preparing an oral report on that animal, a study for which library reference materials and pictures are also needed. Additions are made to the collection regularly as adjustments are made in the program. In this way the purchases of the library reflect its change and growth. As the time for reading grows more limited, we find we need more short stories, smaller books, and easy reading materials. That the teachers consider the library an increasingly important part of the program is evidenced by their interest in suggesting materials to be included.

The first evening at camp the librarian has a story hour for the entire group of campers. Also, at this time she introduces the children to the library--its location, schedule, and types of materials available. The library is open before each meal, at which time the children may come in for books to take back to their cabins to read during rest period after lunch or before going to bed. All materials checked out are due back in the library on the last day of the camping week so as to be available for the next week's group.

Upon returning from their field trips with many varieties of specimens--rocks, fungi, mosses, weeds, nuts, leaves--the children come to the library for assistance in identifying and labeling. Butterflies and some other insects must be identified and properly mounted or preserved; bees, snakes, lizards, turtles and other living creatures must be provided for (more "how to" books are needed!). Microscopes are set out for examining wings, leaves, pond life and so on. Some of the mounted specimens are being made into permanent displays as classroom projects, and will become a part of the Outdoor Education library.

Reading guidance is given to both students and teachers as the need arises. For example, a teacher or counselor may want a story to read to the group in the cabin when there is time. And students and counselors frequently need help in locating materials for skit night.

Reference work occupies more of the librarian's time than any other phase of the library program. Gathering materials for the wild animal study and identification of specimens are the two main areas. In actuality, the role of the library for the Outdoor Education Program is little different from that of the school library. Only the location and subject matter vary.

At camp the library is housed in metal cabinets set up in the large recreation room. During the winter months it is divided and sent to the schools that will be going out in the spring so that the teachers and students may familarize themselves with the collection.

We feel the biggest problem is not having sufficient time to expand the library program into more interest areas. We would like to have several blocks of time when small groups of children could come to the library for activities such as story hours, educational games, book talks and discussions, story-telling records, character studies of book personalities, reading a book together, "Who am I" pantomimes from books read, quiz sessions requiring searching for the answers in the vertical file, and similar activities--all based on materials from the library.

As in any other venture, the success of the program depends upon the people involved: the preparation, skill and enthusiasm of the teachers and counselors. The planning and prestudy in the classroom that go on in the weeks before going to camp can vary with the teacher; the follow-up program and the wealth of projects that can arise as a result of the experience will also vary with the teacher. Evaluation of each week's session is made by the teachers and the counselors who attended the camp, for consideration in future plans. New activities under consideration indicate that the library will be increasingly necessary in the outdoor education curriculum.

One morning before breakfast the librarian overheard three boys discussing what they thought of camp. "This is a lot better than school," one remarked. The librarian could not let this pass. "This is school, didn't you know that?" To which the boy immediately replied, "Best school I've ever been to!"

Willis R. M. Schott, assistant superintendent of the Lindbergh School District, contributed some interesting details on the history of the Outdoor Education Program, and the prospects ahead:

Even prior to the selection of a suitable camp sight, we were planning a library and its facilities, which culminated in the purchase of two $2400 trailers from Government Surplus Property. The interior of these trailers was converted into book shelving and vertical file drawers.

Once arrangements had been made with United Church of Christ to utilize their facilities, which included a recreation hall, cabins, and a dining hall (located on 260 acres of woodland), sufficient space was available to bring our library in out of the cool 30 degree weather which arrives for a few days in April and October.

With but seventeen weeks of experience in the entire program, there is a great deal of latitude in future development of our curriculum, but you can be sure the library with its resources and responsible people will be part of our foundation.

Lindbergh School District Outdoor Education
Library Activities

Form # 57

Sunday Evening

1. Introduction to Library:
    - a.) Show samples of books. Stress that they must be returned by Friday (their last day at camp) or before.
    - b.) Explain specimen identification after General Tour
    - c.) Describe check-out precedure for books.
    - d.) Animal reports (skit demonstrating packet and checking out packet (use animal other than those used by children).
    - e.) Use library for suggestions for Skit Night
    - f.) Announce hours library will be open
2. Story Hour
    - a.) Nature-related story or
    - b.) Skit (sample for Skit Night)

Monday

1. 11:00 - 12:00, & 4:00 - 5:00 Librarian assist groups in identifying specimens they bring in from General Tour. Have books out on tables by the following topics= Insects, Trees, Animals, Flowers, Rocks, Non-flowering, Birds, Reptiles, Amphibians. Leave out for afternoon group. When they are finished, return books to proper place in cabinets.
2. 12:30 - 1:00, Library open to check out books. Have them write their name and cabin # on book card. Stamp book due on Friday of that week. Also stamp date due. Keep book cards in next to bottom drawer in file cabinet.
   ---Issue animal report folders to those cabins reporting Tuesday evening. Have them fill in form on folder completely.

Tuesday

1. At lunch, Camp Director introduce counselor who will be in charge of library for remainder of week.
2. Remind them library will be open 12:30 - 1:00 each day to check out and return books and to check out animal report folders.
3. 12:30 - 1:00, Library open to check out books.
   ---Issue animal report folders to those cabins reporting Wednesday evening.

Wednesday

12:30 - 1:00, Library open to check out and return books.
---Issue animal report folders to those cabins reporting Thursday evening.

Thursday

12:30 - 1:00, Library open to check out and return books.

Friday

1. 8:30 - 9:30, Library open to receive all books still out.
2. 9:30, If any books still not returned, give book cards to Camp Director to announce when assembly is held for recap. and presentation of awards.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
SPECIMEN COLLECTION DATA

Form # 58

USE THIS FORM TO HELP YOU DESCRIBE AND IDENTIFY THE SPECIMENS YOU COLLECT.

STEP ONE: COLLECTOR (your name) ______________________ SCHOOL ______________

STEP TWO: CHECK ONE. _____ANIMAL _____PLANT _____MINERAL

STEP THREE: Further identify by checking or describing;

_________Bug
_________Spider
_________Turtle
_________Toad
_________Insect
_________Egg
_________Larva (caterpillar)
_________Pupa (cocoon or chrysalis)
_________Butterfly
_________Moth
_________Animal skin
_________Other Describe

_________Plant
_________Flower
_________Seed
_________Fruit
_________Plant
_________Twig
_________Bark
_________Gall
_________Moss
_________Mushroom
_________Lichen
_________Other Describe

_________Rock
_________Soil
_________Water
_________Leaf

STEP FOUR: Go to resource area for identification material.

STEP FIVE: Check outstanding feature used in identification and describe.

Color or markings ____

Height ____________________ Size ______________ Weight ________

STEP SIX: Reference material used:

Title ____

Author ________________________ Page # ____________________

STEP SEVEN: Found and Identified: ______________ On date ______________

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
LIBRARY SHELF LIST - BY SUBJECT CATEGORY

Form # 59

MYTHOLOGY -

292	Sellew, Catherine:	Adventure with the gods

CONSERVATION OF NATURAL RESOURCES -

333	Mo. Dept. of Conservation	Mo. Conservationist, Vol. 28
333.7	Bale, Robert	Conservation for camp and classroom
333.7	Boy Scouts of America	Conservation of natural resources
333.7	Hitch, Allen	Conservation and you
333.7	Hogner, Dorothy	Conservation in America
333.7	Laycock, George	America's endangered wildlife
333.7	Mattison, Charles	Man and his resources in today's world
333.7	Mo. Cons. Comm.	An approach to conservation education
333.9	Archer, Sellers	Rain, rivers and reservoirs
333.9	Boy Scouts of America	Soil and water conservation
353.3	Colby, Carroll B.	Fish and wildlife, the work of the U.S. Fish and Wildlife Service

FOLKLORE, FAIRY TALES, LEGENDS -

398.2	Arkhurst, Joyce	Adventures of Spider; West African folktales
398.2	Belting, Natalie	Calendar moon; poems based on legends from Indians, Orientals, Eskimos, Africans
398.2	Belting, Natalie	Cat tales
398.2	Belting, Natalie	The sun is a golden earring
398.2	Bloch, Marie	Ukranian folk tales
398.2	Bowman, James	Mike Fink
398.2	Carpenter, Francesce	Wonder tales of dogs and cats
398.2	Curry, Jane	Down from the lonely mountain; N. Am. Ind. legends
398.2	De La Mare, Walter	Animal stories
398.2	Gillham, Charles	Beyond the clapping mountains
398	Keats, Ezra J.	Wonder tales of dogs and cats
398.2	Leach, Maria	Rainbow book of American folk tales and legends

SCIENCE -

500	Popular Science	Index to Popular Science
500	Compton, F. E.	Dictionary of the Natural Sciences, Vol. 2
500	Commoner, Barry	Science and survival
500	Harty, William	Science for camp and counselor
500	Parker, Bertha	Golden book of science
500	Schwartz, Julius	Through the magnifying glass
500.9	Jordan, E.	Nature atlas of Am.: wildlife species (Natl. hist.)
500.9	Life (Periodical)	The world we live in (Natural history)
500.9	Milne, Lorus	The world of night (" ")
500.9	Morrow, Betty	See up the mountain (" ")
500.9	Peattie, Donald	The rainbow book of nature (Natural history)
507.2	Viorst, Judith	150 science experiments step-by-step
507.2	Youngpeter, John	Winter science activities
508	Bronowski, J.	Science: Chemistry, physics, astronomy (collection of readings in science)

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
LIBRARY SHELF LIST - BY SUBJECT CATEGORY

Form # 60

ASTRONOMY -

523	Fenton, Carroll	Worlds in the sky
523	Wyler, Rose	New golden book of astronomy
523.1	Zim, Herbert	The universe
523.3	Brenna, Virgilio	The moon
523.3	Sutton, Felix	The how and why wonder book of the moon
523.4	Gallant, Roy	Exploring the planets
523.4	Lauber, Patricia	All about the planets
523.5	Zim, Herbert	Shooting stars
523.6	Zim, Herbert	Comets
523.7	Zim, Herbert	The sun
523.8	Hoss, Norman	The how & why wonder book of stars
523.8	Rey, H. A.	Find the constellations
523.8	Zim, Herbert	Stars
525	Ravielli, Anthony	The world is round

MINERALOGY & ROCKS -

549	Howe, Wallace	Stratigraphic succession in Missouri: Mo. geological survey & water resources
549	Pearl, Richard	Wonders of rocks & minerals
549	Pough, Frederick	Field guide to rocks & minerals
549	Weaver, Dolla	For pebble pups
549	Zim, Herbert	Minerals
549	Zim, Herbert	Rocks and minerals...familiar minerals, gems, ores and rocks
552	Cormack, M. B.	The first book of stones
552	Fenton, Carroll	Rocks and their stories
552	Hyler, Nelson	How & why wonder book of rocks & minerals
552	Shuttlesworth, Dorothy	The story of rocks

GEOLOGY, EARTH SCIENCE

551	Ames, Gerald	The earth's story
551	Ames, Gerald	Planet earth
551	Bendick, Jeanne	The shape of the earth
551	Boy Scouts of America	Geology
551	Branley, Franklin	The earth: Planet number three
551	Hayes, W. C.	Mineral and water resources of Missouri
551	Life (Periodical) (Beiser, Arthur)	Earth
551	Sutton, Felix	The how & why wonder book of our earth
551	Viorst, Judith	Changing earth
551.4	Bretz, J. Harlan	Geomorphic history of the Ozarks of Mo.
551.4	U.S. Dept. of Agriculture	Water: the Yearbook of Agriculture 1955
551.6	Adler, Irving	Weather in your life
551.6	Bonsall, George	How & why wonder book of weather
551.6	Gallant, Roy	Exploring the weather
551.6	Lehr, Paul	Weather, air masses, clouds, rainfall, etc.
551.6	Tannehill, Ivan	All about the weather

FOSSILS -

560	Fenton, Carroll	The fossil book; record of prehistoric life
560	Unklesbay, A. G.	Common fossils of Missouri

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
LIBRARY SHELF LIST - BY SUBJECT CATEGORY

Form # 61

NATURE STUDY; BIOLOGY -

570	Boy Scouts of America	Nature
574	Brown, Vinson	How to explore the secret worlds
574	Buck, Margaret	In woods and fields
574	Buck, Margaret	Small pets from woods and fields
574	Cooper, Elizabeth	Science in your own back yard
574	Fitzpatrick, Jain	Living things
574	Glemser, Bernard	All about biology
574	Hillcurt, William	Field book of nature activities and conservation
574	Jaques, H.	Living things
574	Nickelsburg, Janet	Field trips
574	Pettit, Ted	A guide to nature projects
574	Riedman, Sarah	Naming living things, the grouping of plants and animals
574	Russell, Franklin	Watchers at the pond
574	Saunders, John	Question and answer book of nature
574	Selsam, Millicent	See through the forest
574	Selsam, Millicent	See through the lake
574	Shoman, Joseph	Manual of outdoor interpretation
574	Storer, John	The web of life
574	Tinbergen, Niko	Curious naturalists
574	Viorst, Judith	Natural world
574.1	Zim, Herbert	How things grow
574.3	Cosgrove, Margaret	Eggs-and what happens inside them
574.5	Farb, Peter	Ecology
574.5	Hirsch, S. Carl	The living community; venture into ecology
574.5	Selsam, Millicent	Birth of a forest
574.9	Allen, Durward	The life of prairies and plains
574.9	Behnke, Frances	What we find when we look under rocks
574.9	Mohr,	The life of the cave
574.9	Usinger, Robert	The life of rivers and streams
574.9	McCormick, Jack	Life of the forest
574.92	Amos, William	The life of the pond
574.92	Reid, George	Pond life
578	Disraeli, Robert	New worlds through the microscope
578	Jahn, T.	Protozoa
578	Keen, Martin	How & why wonder book of the microscope and what you see

BOTANY -

580	Boy Scouts of America	Botany
581	Caulfield, Peggy	Leaves
581	Coon, Nelson	Using wayside plants
581	Earle, Olive	Pond and marsh plants
581	Gibbons, Euell	Stalking the healthful herbs
581	Gibbons, Euell	Stalking the wild asparagus
581	Greig-Smith, P.	Quantative plant ecology
581	Jaques, H.	Economic plants
581	Jaques, H.	Plant families
581	Lubell, Winifred	Green is for growing
581	Selsam, Millicent	Plants that heal
581	Selsam, Millicent	Plants we eat
581	Selsam, Millicent	Play with plants

BOTANY (cont'd) -

581	Steyermark, Julian	Flora of Missouri
581	Steyermark, Julian	Spring flora of Missouri
581	Zim, Herbert	Plants
582	Brockman, C. Frank	Trees of North America
582	Coe, Geoffrey	How & why wonder book of trees
582	Cormack, M. B.	The first book of trees
582	Cosgrove, Margaret	Wonders of the tree world
582	Fenton, Carroll	Trees and their world
582	Guilcher, J. M.	A tree is born
582	Hutchins, Ross	The amazing seeds
582	Jaques, H.	How to know the trees
582	Milne, Lorus	Because of a tree
582	Petrides, George	A field guide to trees and shrubs
582	Selsam, Millicent	Play with seeds
582	Settergren, Carl	Trees in Missouri
582	U.S. Dept. of Ag.	Trees: Yearbook of Agriculture 1949
582	Wylie, J. E.	Missouri trees
582	Zim, Herbert	Trees
583	Cavanna, Betty	First book of wild flowers
583	Cuthbert, Mabel	Fall flowers
583	Cuthbert, Mabel	Spring flowers
583	Denison, Edgar	Missouri wildflowers, a field guide
583	Hall, Leonard	Ozark wildflowers
583	Lane, Ferdinand	All about the flowering world
583	Rickett, Theresa	Wild flowers of Missouri
583	Zim, Herbert	Flowers
586	Shuttleworth, Floyd	Non-flowering plants
586	Sterling, Dorothy	Story of mosses, ferns, and mushrooms
588	Conard, H.	Mosses and liverworts
588	Smith, Alexander	Mushroom hunter's field guide
589	Lietz, Gerald	Junior sdience book of bacteria
589	Prescott, B.	Fresh-water algae
589	Selsam, Millicent	Microbes at work
583	Dowden, Anne	Look at a flower

ZOOLOGY -

590	Boy Scouts of America	Zoology
590	Hegner, Robert	Parade of the animal kingdom
591	Colby, Carroll B.	First book of animal signs
591	Collins, Henry	Complete field guide to American wildlife
591	Mason, George	Animal baggage
591	Mason, George	Animal tracks
591	Murie, Olaus	A field guide to animal tracks
591	Rounds, Glen	Beaver business
591	Selsam, Millicent	How animals tell time
591	Seton, Ernest	Wild animals I have known
591.5	Cosgrove, Margaret	The strange world of animal senses
591.5	Mason, George	Animal weapons
591.5	Reader's Digest	Marvels & mysteries of our animal world
591.5	Selsam, Millicent	The language of animals
592	Darling, Louis	Worms
594	Kellin, Sally	A book of snails
594	Schisgall, Oscar	That remarkable creature, the snail

ZOOLOGY (cont'd) -

595	Kaston, B.	How to know the spiders
595	Lougee, Laura	The web of the spider
595	Parker, Bertha	Spiders
595	Shuttlesworth, Dorothy	The story of spiders
595.7	Barker, Will	Familiar insects of America
595.7	Bronson, Wilfrid	The grasshopper book
595.7	Chu, H. F.	The immature insects
595.7	Farb, Peter	The insects
595.7	Farb, Peter	The story of butterflies & other insects
595.7	Rood, Ronald	Bees, bugs and beetles
595.7	Rood, Ronald	How & why wonder book of insects
595.7	Simon, Hilda	Exploring the world of social insects
595.7	Simon, Hilda	Insect masquerades
595.7	Sterling, Dorothy	Insects and the homes they build
595.76	Harris, Louise	Flash, the life story of a firefly
595.76	Jaques, H.	How to know the beetles
595.78	Clarke, J. F.	A golden book of butterflies
595.78	Ehrlich, Paul	How to know the butterflies
595.78	George, Jean	The moon of the monarch butterflies
595.78	Klots, Alexander	A field guide to the butterflies of N. Amer.
595.78	Klots, Alexander	A field guide to the butterflies
595.78	Mitchell, Robert	Butterflies and moths
595.78	Rood, Ronald	How & why wonder book of butterflies & moths
595.78	Sterling, Dorothy	Caterpillars
595.78	Boy Scouts of America	Beekeeping
595.79	Bronson, Wilfrid	Wonder world of ants
595.79	Phillips, Mary	The makers of honey
595.79	Rood, Ronald	How & why wonder book of ants & bees
595.79	Shuttlesworth, Dorothy	The story of ants

FISHES, FROGS, etc. -

597	Coe, Geoffrey	How and why wonder book of fish
597	Eddy, Samuel	Freshwater fishes
597	George, Jean	The moon of the salamanders
597	Hawes, Judy	What I like about toads
597	Zim, Herbert	Frogs and toads

REPTILES AND AMPHIBIANS -

598.1	Bronson, Wilfrid	Turtles
598.1	Conant, Roger	A field guide to reptiles & amphibians
598.1	Holling, Holling C.	Minn of the Mississippi
598.1	McClung, Robert	Buzztail, the story of a rattlesnake
598.1	Morris, Percy	Boys' book of snakes
598.1	Morris, Percy	Boys' book of turtles & lizards
598.1	Zim, Herbert	Snakes

BIRDS -

598.2	Adrian, Mary	The American eagle
598.2	Balkoff-Drowne, Tatia	Take wing
598.2	Boy Scouts of America	Bird study
598.2	George, Jean	The moon of the owls

BIRDS (cont'd) -

598.2	George, John	Bubo, the great horned owl
598.2	Jaques, H.	Water birds, (How to know)
598.2	Mathewson, Robert	How & why wonder book of birds
598.2	Peterson, Roger Tory	A field guide to the birds
598.2	Peterson, Roger Tory	How to know the birds
598.2	Schutz, Walter	Bird watching, housing and feeding
598.2	U.S. Dept. of Interior	Fish and Wildlife S.E.
598.2	Wetmore, Alexander	Song & garden birds of N. America (Nat'l Geog. Soc.)
598.2	Zim, Herbert	Birds; a guide to the most familiar American birds

MAMMALS -

599	Booth, Ernest	Mammals
599	Buff, Mary and Conrad	Forest folk
599	Colby, Carroll	Wild rodents
599	Earle, Olive	Paws, hoofs and flippers
599	Ripper, Charles	Bats
599	Sanderson, Ivan	Living mammals of the world
599	Schwartz, Charles	Wild mammals of Missouri
599	Williamson, Margaret	The first book of mammals
599	Zim, Herbert	Mammals, a guide to familiar American species
599	Burt, William	Field guide to mammals found N. of Mex. boundary

AGRICULTURE -

630	Boy Scouts of America	Agriculture
631.4	Colby, Carroll B.	Soil savers
631.4	U.S. Dept. of Ag.	Soil: Yearbook of Agriculture 1957
632	U.S. Dept. of Ag.	Common Weeds of the U.S.
632	Jaques, H.	Weeds
633	Boy Scouts of America	Forage crops
633	Boy Scouts of America	Small grains
633	Pohl, R.	Grasses
634	Boy Scouts of America	Forestry
634	McCormick, Jack	The living forest
634	Mo. Cons. Comm.	Forestry in Missouri

ARTS AND CRAFTS, HANDICRAFT -

741	Zaidenberg, Arthur	How to draw with pen and brush
745.5	Bale, R. O.	Creative nature crafts
745.5	Bale, R. O.	Stepping stones
745.5	Boy Scouts of America	Leatherwork
745.5	Boy Scouts of America	Wood carving
745.5	Boy Scouts of America	Woodwork
745.5	Hammett	Creative crafts for campers
745.5	Hunt, W.	Golden book of crafts and hobbies
745.5	Nagle, Avery	Fun with naturecraft
745.5	Schneider, Herman	Science fun with milk cartons
745.5	Waltner, Willard	Wonders of hobbycraft
745.5	Zarchy, Harry	Let's make a lot of things
751	Hawkinson, John	Collect, print and paint from nature

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
LIBRARY SHELF LIST - BY SUBJECT CATEGORY

Form # 65

MUSIC -

784	Hoem, Jean	Sing with Smokey

GAMES AND SPORTS -

796	Eisenberg, Helen or Larry	Fun with skits, stunts and stories
796.5	Boy Scouts of America	Hiking

CAMPING -

796.54	Boy Scouts of America	Camping
796.54	Hammett, Catherine	Camp program book
796.54	Jaeger, Ellsworth	Wildwood wisdom
796.54	Kephart, Horace	Camping and woodcraft
796.54	Ledlie, John	Handbook of trail campcraft
796.54	Mason, Bernard	The Junior book of camping & woodcraft
796.54	Northway, Mary	The camp counselor's book

SPORTS -

799.1	Bates, Joseph	Elementary fishing
799.1	Boy Scouts of America	Fishing
799.1	Colby, Carroll B.	The first fish, what you should know to catch him
799.3	Boy Scouts of America	Archery

SHORT STORIES -

808.8	Cathon, Laura	Perhaps and perchange
808.8	Shane, Harold	Words with wings

MISCELLANEOUS -

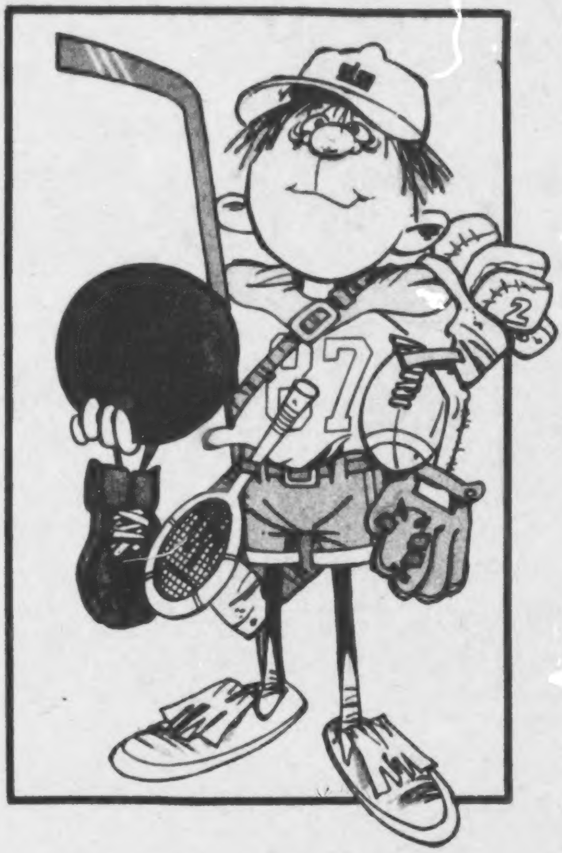
977.8	Carpenter, Allan	Missouri, from its glorious past to the present

REFERENCE -

031	World Book Encyclopedia
317.3	World Almanac
423	Webster's New World Dictionary - elementary edition
503	Young People's Science Dictionary
500	Book of Popular Science (Grolier)
574	Audubon Nature Encyclopedia (Nat'l Audubon Soc.)
591	Animal World in Color - 12 vols. (Burton, Maurice - ed.)

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form #66



off to camp

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 67

ROUTE SHEET TO CAMP MO-VAL

DO NOT EXCEED 50 MPH at anytime!!!!

Leave school and go to Lindbergh and Highway 66

Go out Interstate Hwy. 44

Turn right at Allentown by Six-Flags

Take Old Highway 66 through Pacific

At western edge of Pacific, turn right onto Highway 44

Go out Highway 44 until you reach Highway 50

Turn right to outskirts of Union

Turn right just after Bridge

Turn left first street into the square

Turn left at far side of courthouse and return to Highway 50

Turn right onto Highway 50

Go out to Highway UU

Turn left onto UU and follow signs to Camp MO-VAL

TRAVEL IN CONVOY - on return trips on Sunday and going out on Fridays,

If a breakdown occurs on way to OR from camp:

1. Call Camp Mo-Val 1 - 583-3852
2. For Road Service: ON FRIDAYS CALL: 842-2666 or 991-1640

ON SUNDAYS CALL: Ken Theiling 842-3663

or

Herb Nulsen 892-0123

If emergency call: David Carroll 993-2385

UNDER NO CIRCUMSTANCES ABANDON YOUR BUS

FORM # 68

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

THE TRIP LOG OF CAMPER ______________________________

Aboard Lindbergh School District Bus # ______

Trip Log: A log is a daily record of occurrences, sightings, speed and progress aboard ship.

In your case, this log will be a list of things to be discovered on the way to Camp Mo-Val.

Directions:

The arrow indicates direction to look for the item to be discovered. If you miss seeing an item listed, skip to the next. Your Trip Log starts at Interstate 44 and Geyer Road.

Bus Odemeter Reading at your school: ______________________

Time left school ______

Direction	Locate Point of Reference
↔	Highway signs at intersection of Geyer Road and I-44 indicating speed limit and highway number.
↔	Cloverleaf intersection of 244 and I-44.
↔	Meramec River. WHICH DIRECTION DOES IT FLOW? ________
←	United Van Lines World Headquarters.
←	Weiss Airport.
↔	Motels to accommodate travelers as well as business visitors to the Chrysler Plant and other industries.
→	Chrysler Plant. WHAT DO THEY MAKE? ____________
→	Inland Container.
→	MARTIZ a very fine example of landscaping.
↔	Notice drill marks in the rock outcropping exposed due to highway construction near Valley Park.
→	Buder Park, circles are for model airplane flying.
→	Spur rail line serving industrial complex of Chrysler and adjacent companies. WHAT IS A SPUR RAIL LINE? ________ ______________________________
→	Sanitary Land Fill
←	Valley Mount Ranch: Riding stables.
↔	Foothills of the Ozarks.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM # 69

Direction	Locate Point of Reference
↔	Rock exposed opposite entrance to Washington University Research Center in "Lone Elk Park". HOW DID ELK PARK GET ITS NAME? ____________
→	Tyson Valley Plant
←	Three (3) levels of highway beyond Antire Road exit.
←	Bussen Antire Quarry; notice limestone piles.
→	Lewis Rd. Times Beach Exit. Use this exit to reach West Tyson Park.
↔	Meramec River. IS THE DIRECTION OF ITS FLOW THE SAME AS NOTED ON PAGE 1? ____________
←	Eureka Elementary School.
→	Allenton: site of "Six Flags Over Mid-America".

TURN OFF I-44 onto old US 66

→	Stone farmhouse and barn by sign Rockwoods Reservation.
↔	Old Highway 66 cut through rock.
→	Farm crops. WHAT IS, OR WHAT WAS, PLANTED? ____________
←	Machines dredging for gravel and sand.
→	Sign indicating Pacific population is ____________
→	Scenic overlook, watchtower over-looking valley on top of rock bluff.
→	Pioneer Silica Products Company where St. Peter's Silica Sand is mined and shipped all over the country as a raw material in the making of glass.
→	Osage Street and 3rd Street - man-made cave. A park on top.
↔	Note and compare the architecture of these homes with your own.
←	Pacific High School

TURN OFF US 66 return to I-44

→	Railroad tunnel (Missouri Pacific R.R.)
←	Screen plantings to hide Missouri Highway Department equipment and supplies. An effort toward beautification of roadsides.
↔	Gray Summit Exit, Missouri 100. Entrance to Missouri Botannical Garden Arboretum.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM # 70

Direction	Locate Point of Reference
↑	2nd overpass from Washington, Missouri turn-off. ESTIMATE DISTANCE TO TOP OF FAR HILL TO ROCK PARALLEL TO ROAD. MY ESTIMATE IS ____________________
↑→	Twin bridges over the Bourbese River.
TURN OFF I-44 onto Missouri 50 West	
↔	Road cut through white rock. WHAT KIND OF ROCK IS THIS? ____________________
↔	Road cut through red rock. IS THIS THE SAME KIND OF ROCK? ____________________
←	Terraced pasture and farm land with farm house, barns and out buildings.
←	Campus of East Central Junior College.
↑	Panoramic view of Union, Missouri.
↔	Note direction of Bourbese River flow. ____________________
TURN OFF Missouri 50 onto 47 then left into E. Main	
→	Do you see any similarity between architecture of these homes in Union with those of Pacific? With your home? ____________________ ____________________
→	Southwestern Bell Telephone Company.
→	U. S. Post Office, Union, Missouri. Zip Code 63084.
←	Franklin County Courthouse and Jail, in city square, built in 1929.
Left onto S. Oak then right onto Highway 50	
→	Medical Arts Clinic for Camp Mo-Val campers and Union, Mo.
←	Water Company Plant.
Left onto UU →	See Camp Mo-Val sign
←	Notice small tree nursery.
→	Attractive flowers in door yard.
←	Bourbese River parallel to UU. Notice attractive sand and gravel bar, also the deep bend in the river. The Bourbese River is the curviest river in our state. One can float 100 miles while traveling overland 27 miles.
Turn off UU	at the sign for Camp Mo-Val
←	Shelter house for picnicking. First sight of Camp Tambo.
→	Entrance to Camp Mo-Val.

FORM# 71

WELCOME

TO

CAMP MO - VAL

HOPE YOUR STAY WILL BE ENJOYABLE

Odemeter reading at Camp Mo-Val ______________

Time arrived at Camp Mo-Val __________________

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 72

Free of Duties

Counselors and Teachers free of duties between 9:45 and 11:00 p.m. on (X) marked nights. (X) = time off.

The recreation hall has been reserved for you, stay no longer than 11:00 p.m. Return to your cabin upon leaving the recreation hall.

Cabin #	Monday	Tuesday	Wednesday	Thrrsday
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Form # 73

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

SUNDAY SCHEDULE

2:00 P.M. Principal, Teachers, Counselor ready for children with bus assignments.

Bus Drivers ready to load

Counselor reports to Principal and Teacher to render assistance as directed

Wear name tags

Driver, Counselor, and/or Teacher place personal baggage on bus

Check pupil attendance, collect medicine to be given to nurse upon arrival at Camp Mo-Val

Directions on loading the bus:

1. Put two campers in a seat, alternating campers and baggage, front to back, with the baggage of each camper directly across from where the campers are sitting, putting the baggage on the floor first and then on the seat.
2. NEVER PUT BAGGAGE IN THE AISLE!
3. Emergency door must remain free of all baggage, should accident occur all persons must be able to leave by rear emergency door.
4. Escort pupils to wash rooms.
5. Return and load
6. Distribute to each student as they enter bus tour forms, name tags, sealed Top Secret Orders (which are to remain sealed until arrival on parking lot).
7. Aisles must not be blocked!

2:30 Leave individual schools -- travel time, approximately 1 hour and 30 minutes

Principal drives car, leading buses to render assistance

Teachers and counselors assist students by pointing out Trip Log sights they might miss, let students locate first, if possible

Leave school

Follow route on Form #67

Arrival not before 3:30 P.M.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 74

SUNDAY continued

3:30 to 5:15 P.M. Upon Arrival at Camp Mo-Val:

Bus driver stops on upper parking lot

OPEN TOP SECRET ORDERS

DO NOT unload passengers until brief instructions are given by Camp Director

DO turn in count of students, Teachers, and Counselors to Director.

Resident Principal notifies cafeteria and Camp Director as to count and marks table setting required.

Nurse collects medicines.

Counselors and driver assist campers in unloading baggage.

Driver and counselor check bus prior to departure for forgotten items.

All unloaded buses wait to return to St. Louis together, keeping each other in view, thus able to render assistance if necessary. Maintain 100 yard intervals.

After last bus leaves, on direction, Counselors and Teachers take campers to cabins as cabin numbers are called. Vehicle available for all luggage.

IN CABIN learn names of campers and schools, teachers and counselors

1. Assign bunks per schedule (per form number)
2. Teachers and counselors have top drawer --full drawer each
3. Assign students to share half a drawer
4. Assist in unpacking, setting example of hanging clothes
5. Put out wash cloth, towels
6. Turn in flashlights to teacher or counselor
7. Send to nurse excess or request needed blankets or pillows
8. Explain, demonstrate and practice bed making.
9. Review assigned jobs, explain duties and post numbers
10. Review Hoppers' duties and send at 5:15 to Dining Hall
11. After all are unpacked, beds made, jobs are assigned, discuss skit presentation by group for Monday night
12. Cabin goes to Dining Hall on ringing of bell at 5:25
13. Upon entrance into dining hall look for cabin number, all remain standing with removed hats at assigned table for singing of grace

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 75

Scheduled Meeting Places and Dining Chart

Groups are to report to the following stations to meet your group leader for scheduled activities.

All groups should stay outside the building, except when raining, then just inside building.

Group A - Dining room door on paved side of the building. Cabin ______

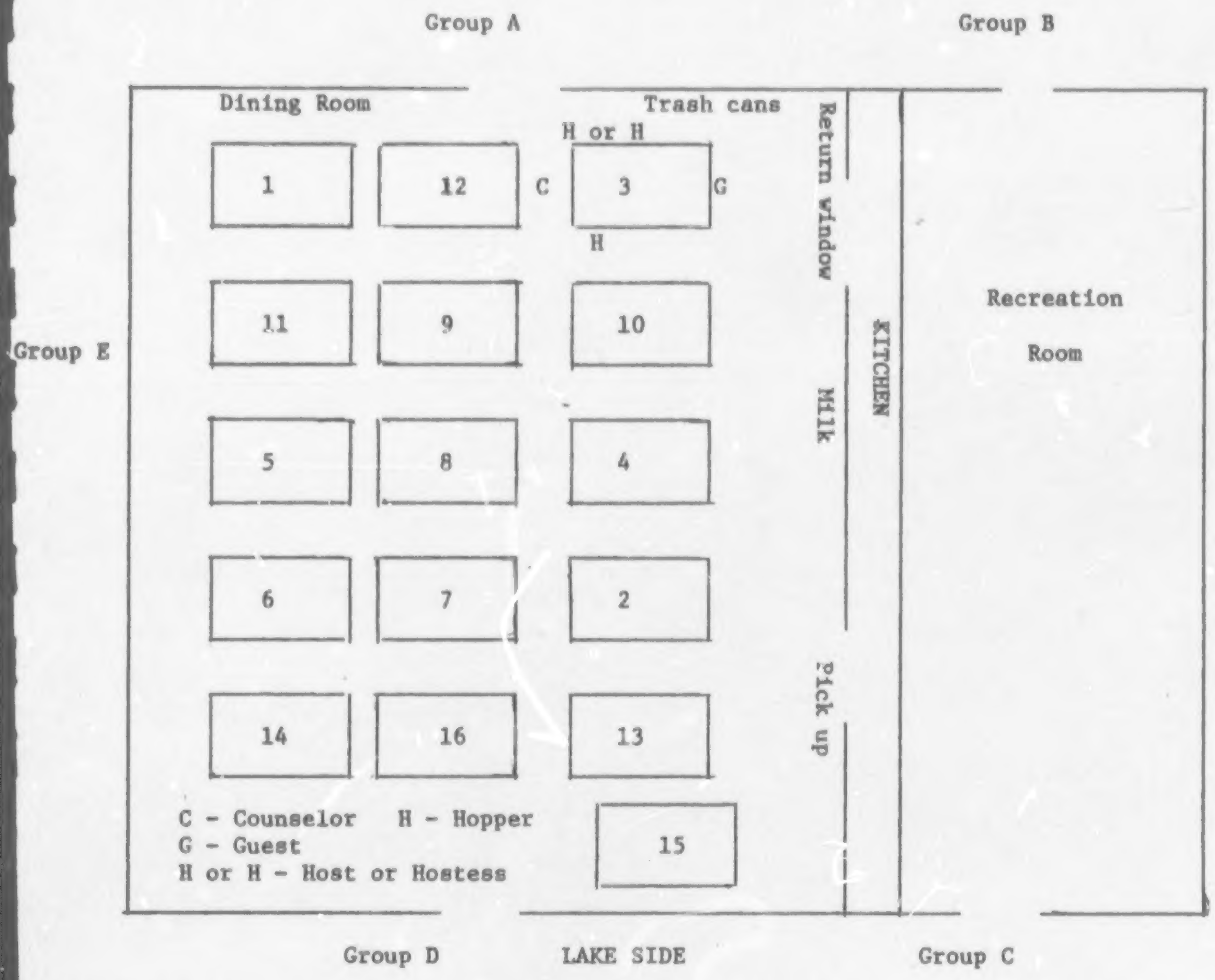
Group B - Recreation room door on paved side of the building. Cabin ______

Group C - Recreation room door on lake side of the building. Cabin ______

Group D - Dining room door on lake side of the building. Cabin ______

Group E - Bell Tower Cabin ______

DINING CHART

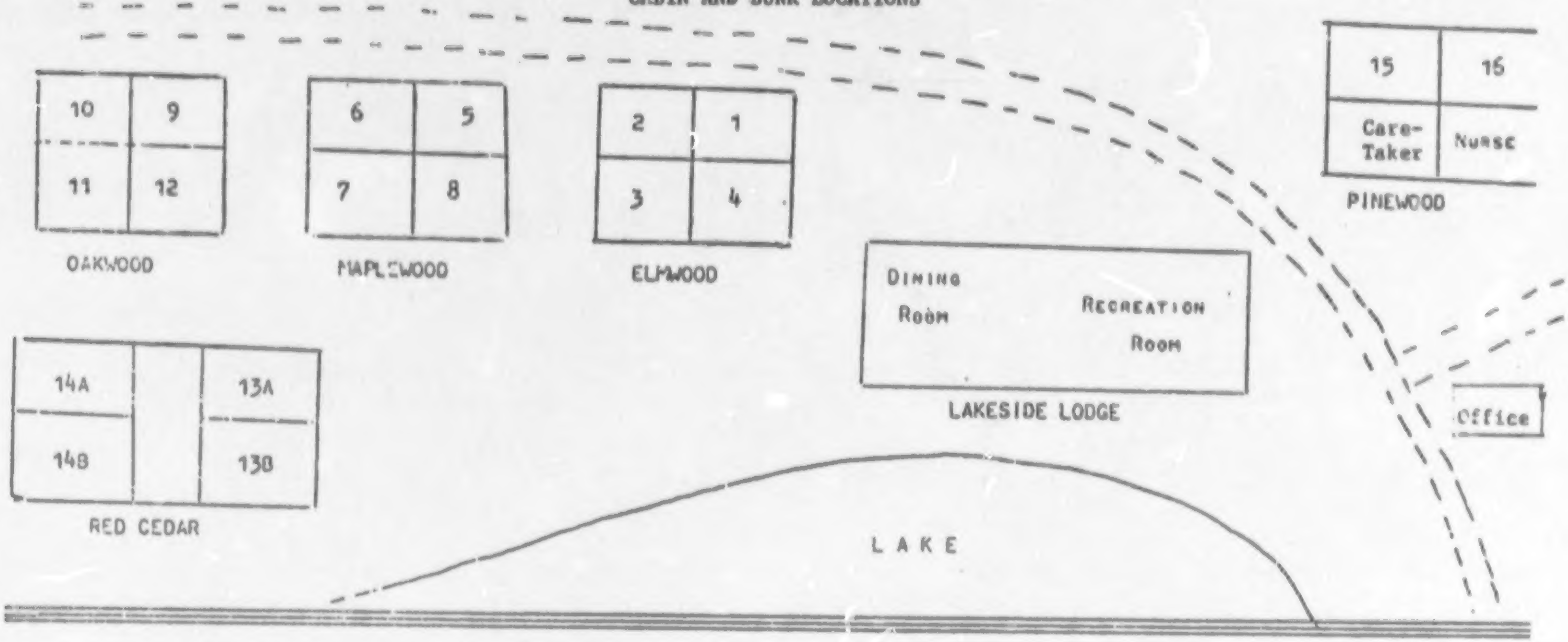

Group A
Group B
Dining Room
Trash cans
H or H
1
12
C
3
G
H
Return window
11
9
10
KITCHEN
Recreation
Room
Group E
5
8
4
Milk
6
7
2
Pick up
14
16
13
15
C - Counselor
H - Hopper
G - Guest
H or H - Host or Hostess
Group D
LAKE SIDE
Group C

Mark table settings required on masking tape and attach to table number

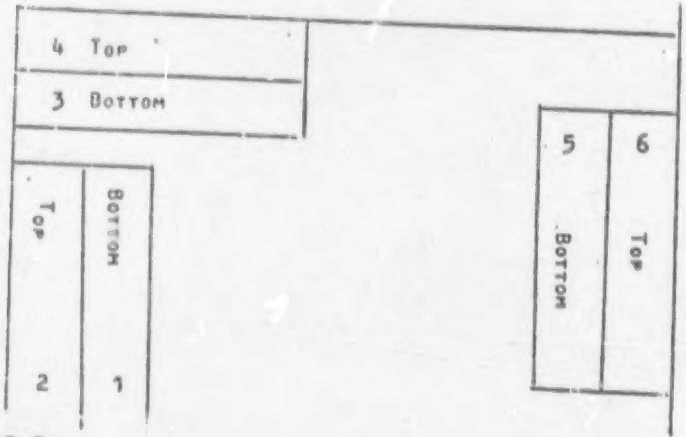
LINDBERGH SCHOOL DISTRICT
OUTDOOR EDUCATION

FORM #76

CABIN AND BUNK LOCATIONS


10
9
11
12
OAKWOOD
6
5
7
8
MAPLEWOOD
2
1
3
4
ELMWOOD
15
16
Care-Taker
Nurse
PINEWOOD
14A
14B
13A
13B
RED CEDAR
Dining Room
Recreation Room
LAKESIDE LODGE
Office
LAKE

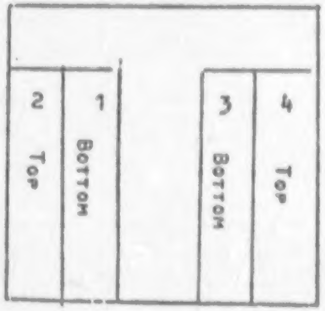
CABIN FLOOR PLANS WITH BUNK LOCATIONS


4 Top
3 Bottom
Top
Bottom
2
1
5
6
Bottom
Top

Even Numbers - Top

Odd Numbers - Bottom

Red Cedar


2
1
3
4
Top
Bottom
Bottom
Top

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 77

DAILY SCHEDULE

NAME	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
	Host or Hostess	Grounds Keeper	Sanitary Engineer	Porter	Secretary	Hopper
	Hopper	Host or Hostess	Grounds Keeper	Sanitary Engineer	Porter	Secretary
	Secretary	Hopper	Host or Hostess	Grounds Keeper	Sanitary Engineer	Porter
	Porter	Secretary	Hopper	Host or Hostess	Grounds Keeper	Sanitary Engineer
	Sanitary Engineer	Porter	Secretary	Hopper	Host or Hostess	Grounds Keeper
	Grounds Keeper	Sanitary Engineer	Porter	Secretary	Hopper	Host or Hostess
	Host or Hostess	Hopper	Secretary	Porter	Sanitary Engineer	Grounds Keeper
	Porter	Host or Hostess	Grounds Keeper	Sanitary Engineer	Hopper	Secretary
First to Shower						

TIME AND DAY ____________________

BELL RINGERS (Feed Stock) ____________________

WEATHER REPORT ____________________

FLAG DETAIL ____________________

SONG LEADER (Sing Grace), after meal, prior and during evening activity __________

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 78

Job Descriptions and Assignments

A. Host or Hostess
1. Assist counselor in serving food
2. Be responsible for introduction of guest at table
3. Make sure that each camper at the table is drawn into the conversation
4. Help the hopper clear the table after the meal

B. Hopper
1. Wash hands
2. Put out napkins at each place
3. Fill the milk pitcher 3/4 full at milk dispenser, and place in front of host
4. Get the food from the food window in the dining lodge and place it on the table near the counselor
5. Get seconds from the food window
6. Help host or hostess clear table after the meal

C. Secretary
1. See that groups arrive at all activities on time
2. Make sure each student has his name tag on at all times
3. Make sure that each student has the equipment he needs when he leaves the cabin to go on field activities
4. Take notes on trips and outings and he prepared to report items of interest at group assembly
5. Write and post all announcements

D. Porter
1. Report to activity leader, assist in gathering necessary equipment
2. Return equipment to its proper place after returning from field trip
3. Take all out-going letters to mail box in dining hall

E. Sanitary Engineer
1. Sweep the cabin every morning before cabin inspection
2. Make sure each camper has put away his clothes and belongings and has his bed made
3. Be responsible for cleanliness and neatness of cabin at all times
4. Open windows if needed, prior to retiring

F. Grounds Keeper
1. Keep the area around the cabin free of trash and litter
2. Help keep other areas of the camp clean (such as campfire sites, dining lodge)
3. Responsible for helping set up campfire and putting out fire prior to departure

Schedule for 5 students

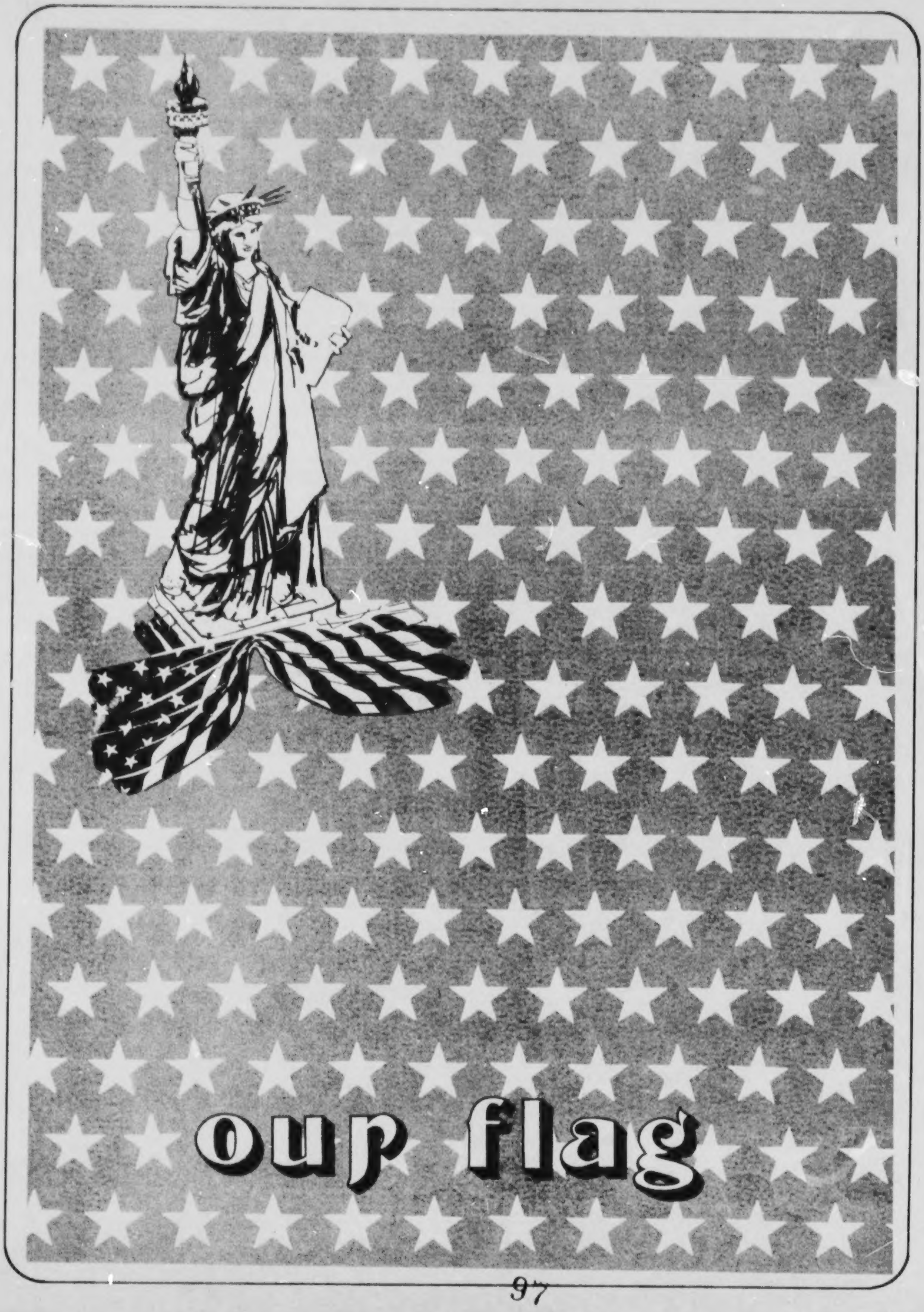
k	S	M	T	W	TH	F
	A	E-F	D	C	B	A
	B	A	E-F	D	C	B
	C	B	A	E-F	D	C
	D	C	B	A	E-F	D
	E-F	D	C	B	A	E-F

Schedule for 6 students

Bunk	S	M	T	W	Th	F
1	A	F	E	D	C	B
2	B	A	F	E	D	C
3	C	B	A	F	E	D
4	D	C	B	A	F	E
5	E	D	C	B	A	F
6	F	E	D	C	B	A

Schedule for 7 students

Bunk	S	M	T	W	Th	F
1	A	F	E	D	C	B
2	B	A	F	E	D	C
3	C	B	A	F	E	D
4	D	C	B	A	F	E
5	E	D	C	B	A	F
6	F	E	D	C	B	A
7	A	B	C	D	E	F


our flag

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 80

FLAG CEREMONIES

Flag detail leader should read, know, and discuss with Color Guard prior to the flag ceremony.

FORMATION: Campers form a horseshoe or circle at flagpole, leaving an opening for Color Guard. At command by leader, the Color Guard enters the circle two by two and advances to position in front of flagpole. The Guard remains facing the flagpole during the entire ceremony.

SILENCE: There is absolute silence during the ceremony.

COMMANDS FOR FLAG TO BE RAISED:

"Color Guard, advance!"
"Color Guard, present the Colors!"
Color bearer attaches flag
On signal camp salutes
Ceremony (selected from list below)
"Color Guard, dismissed!"

COMMANDS FOR FLAG TO BE LOWERED:

"Color Guard, advance!"
Ceremony (selected from list below)
"Color Guard, retire the Colors!"
On signal camp salutes
Color bearer lowers the flag
Color Guard catches the flag
Color Guard folds the flag
"Color Guard, dismissed!"

SALUTE: Salute -- right hand over heart. At Colors (raising of the flag) the camp salutes, then the first loop is attached to the rope and holds the salute until the flag reaches the top of the pole. The Color Guard salutes after the flag is in place and they have stepped back a pace or two, At Retreat (lowering the flag) the camp salutes when the flag starts down and holds salute until the first loop is unfastened from the rope. The Guard salutes the flag after taking position and before lowering the flag.

RAISING OR LOWERING: At Colors and Retreat, the Color Bearer steps forward on command first and the first two Color Guards follow, taking their positions on the right and left of the flagpole. They are responsible for seeing that the flag flies free and for catching the flag as it is lowered so that it does not touch the ground. At Colors, one member may hold the flag as the Flag Bearer attaches it to the flag rope. The flag is raised briskly and lowered ceremoniously.

CEREMONY: The ceremony takes place after the flag is raised or before it is lowered. It may consist of the Pledge of Allegiance, patriotic songs, poetry, from the enclosed or other sources.

FOLDING THE FLAG: The Flag is folded in an unusual manner.

1) Fold it in half lengthwise.
2) Fold again in half with the blue field on the outside. Make a triangular fold at edge opposite to the Union (blue). Fold over repeatedly. When folded, Flag resembles a cocked hat.

The Color Guard resumes its original position.

Form #81

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

INFORMATION ABOUT OUR FLAG

Our flag has a field of blue, studded with fifty stars which represent the fifty states of the Union. There are also seven red and six white stripes, arranged with red stripes at both the top and bottom; these represent the thirteen original colonies. The blue of the flag stands for justice, the red for courage, and the white for purity. The blue starred section is called the Union or canton; the stick to which a flag is attached is called the staff; and the cord which attaches it is the halyard.

The flag may be flown on any day in which the weather is satisfactory, especially on holidays and historic occasions. It should never be left out when moisture is falling.

The flag may be raised at any time after sunrise and should be taken down before sunset.

It should be handled and displayed with the greatest respect at all times and never be placed where it will be soiled or allowed to touch anything below, such as the ground or water.

The flag should always be displayed aloft and free, and should be maintained in good condition, mended when torn, and cleaned when dirty. When the flag is no longer serviceable, it should be destroyed only by burning in private.

Flying the flag at half-mast signifies a period of mourning. First raise the flag to the peak, then lower it to a postion halfway down the pole. Later when lowering it again, raise it to the top, then bring it down.

The fold of the flag is done in an unusual manner. The first step is to fold it lengthwise in halves, then in quarters, with the blue field on the outside.

Make a triangular fold at edge opposite to the Union. Fold over repeatedly. When folded, the Flag resembles a cocked hat. Store it carefully.

THE PLEDGE OF ALLEGIANCE

from THE RED SKELTON HOUR, January 14, 1969

I remember this one teacher. To me he was the greatest teacher, a real saga of my time. He had such wisdom. We were all reciting the Pledge of Allegiance, and he walked over. Mr. Lasswell was his name...He said:

"I've been listening to you boys and girls recite the Pledge of Allegiance all semester and it seems as though it is becoming montonous to you. If I may, may I recite it and try to explain to you the meaning of each word:

I - me, an individual, a committee of one.

PLEDGE - dedicate all of my worldly goods to give without self-pity.

ALLEGIANCE - my love and my devotion.

TO THE FLAG - our standard, Old Glory, a symbol of freedom. Where-ever she waves, there is respect because your loyalty has given her a dignity that shouts freedom is everybody's job.

OF THE UNITED - that means that we have all come together.

STATES - individual communities that have united into 48 great states. 48 individual communities with pride and dignity and purpose, all divided with imaginary boundaries, yet united to a common purpose, and that's love for country.

OF AMERICA.

AND TO THE REPUBLIC - a state in which sovereign power is invested in representatives chosen by the people to govern. And government is the people and it's from the people to the leaders, not from the leaders to the people.

FOR WHICH IT STANDS.

ONE NATION - meaning, so blessed by God.

INDIVISIBLE - incapable of being divided.

WITH LIBERTY - which is freedom and the right of power to live one's own life without threats or fear or some sort of retaliation.

AND JUSTICE - The principle or quality of dealing fairly with others.

FOR ALL - which means it's as much your country as it is mine."

Since I was a small boy, two states have been added to our country and two words have been added to the Pledge of Allegiance - "under God."

Wouldn't it be a pity if someone said, "That's a prayer" and that would be eliminated from schools, too?

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 83

POEMS AND SONGS FOR FLAG CEREMONY

1) YOUR FLAG & MY FLAG BY WILBUR NESBIT

. YOUR FLAG AND MY FLAG,
AND HOW IT FLIES TODAY
IN YOUR LAND AND MY LAND
AND HALF A WORLD AWAY!
ROSE-RED AND BLOOD-RED
THE STRIPES FOREVER GLEAM;
SNOW-WHITE AND SOUL-WHITE
THE GOOD FOREFATHERS' DREAM;
SKY-BLUE AND TRUE BLUE,
WITH STARS TO GLEAM ARIGHT
THE GLORIED GUIDON OF THE DAY,
A SHELTER THROUGH THE NIGHT.

B. YOUR FLAG AND MY FLAG!
TO EVERY STAR AND STRIPE
THE DRUMS BEAT AS HEARTS BEAT
AND FIFERS SHRILLY PIPE!
YOUR FLAG AND MY FLAG
A BLESSING IN THE SKY;
YOUR HOPE AND MY HOPE
IT NEVER HID A LIE!
HOME LAND AND FAR LAND
AND HALF A WORLD AROUND,
OLD GLORY HEARS OUR GLAD SALUTE
AND RIPPLES TO THE SOUND!

C. YOUR FLAG AND MY FLAG!
AND, OH, HOW MUCH IT HOLDS
YOUR LAND AND MY LAND
SECURE WITHIN ITS FOLDS!
YOUR HEART AND MY HEART
BEAT QUICKER AT
SUN-KISSED AND WIND-
RED AND BLUE AND WHITE.
THE ONE FLAG-THE GREAT FLAG
THE FLAG FOR YOU AND ME
GLORIFIED ALL ELSE BESIDE
THE RED AND WHITE AND BLUE!

) I AM THE FLAG BY LAWRENCE M. JONES

I AM A COMPOSITE BEING OF ALL THE PEOPLE OF AMERICA.
I AM THE UNION IF YOU ARE UNITED,
I AM ONE AND INDIVISIBLE IF YOU ARE UNDIVIDED.
I AM AS STRONG AS THE WEAKEST LINK,
I AM AN EMBLEM OF YOUR COUNTRY.
I AM A SYMBOL OF A SHADOW OF THE REAL,
I AM A SIGN POINTING TO PAST ACHIEVEMENTS,
I AM A PROMISE OF GREATER THINGS FOR THE FUTURE.
I AM WHAT YOU MAKE ME.
I AM PURITY IF YOU ARE PURE,
I AM BRAVERY IF YOU ARE BRAVE,
I AM LOYALTY IF YOU ARE LOYAL.

I AM HONOR IF YOU ARE HONORABLE,
I AM GOODNESS IF YOU ARE GOOD.
I AM HOPE IF YOU ARE HOPEFUL,
I AM TRUTH IF YOU ARE TRUE.

I AM THE CONSTITUTION,
I AM LAW AND ORDER,
I AM TOLERANCE OR INTOLERANCE AS YOU FORCE ME TO BE,
I AM LIBERTY AS YOU UNDERSTAND LIBERTY,
I AM AS A PILLAR OF FIRE BY NIGHT BUT YOU MUST PROVIDE THE FUEL.

I MARCH AT THE HEAD OF THE COLUMN, BUT YOU MUST CARRY ME ON

I STAND FOR GREATER AND MORE GLORIOUS ACHIEVEMENTS THAN
CAN BE FOUND IN RECORDED HISTORY, BUT YOU MUST BE MY INSPIRATION.

I AM THE FLAG.

(3) OUR FLAG BY FRANCES CROSBY HAMLET

ONLY A BIT OF COLOR
WAVING UPON THE STREET
ONLY A WIND-WHIPPED PENNANT
WHERE THE BAND PLAYS SHRILL & SWEET.

YET THE SOLDIER'S HEART BEATS FASTER
AND PROUD IS THE SAILOR'S EYE
AND THE CITIZEN'S STEP IS QUICKENED
WHEN OUR FLAG IS PASSING BY.

ONLY A BIT OF COLOR,
DID I HEAR A BODY SAY!
TRUE BE THE HEARTS THAT GREET IT
WHEREVER IT WAVES TODAY!

BACK OF THAT BIT OF COLOR
LIES A NATION'S HISTORY,
AND AHEAD OF OUR SPLENDID BANNER
WHO KNOWS WHAT THERE YET MAY BE?

(4) OUR COUNTRY'S EMBLEM - AUTHOR UNKNOWN

GOD BLESS OUR COUNTRY'S EMBLEM
THAT FLOATS O'ER LAND AND SEA;
GOD BLESS EACH WAVING STAR AND STRIPE,
AND THE MEN WHO KEPT IT FREE--
MEN, WHO 'MID SMOKE OF BATTLE,
AND MURDEROUS SHOT AND SHELL,
HELD HIGH THE GLEAMING COLORS
OF THE FLAG THEY LOVED SO WELL.

(5) I AM OLD GLORY

I AM OLD GLORY: FOR MORE THAN NINE SCORE YEARS I HAVE BEEN THE BANNER OF HOPE AND FREEDOM FOR GENERATION AFTER GENERATION OF AMERICANS. BORN AMID THE FISTT FLAMES OF AMERICA'S FIGHT FOR FREEDOM. I AM THE SYMBOL OF A COUNTRY THAT HAS GROWN FROM A LITTLE GROUP OF THIRTEEN COLONIES TO A UNITED NATION OF FIFTY SOVEREIGN STATES. PLANTED FIRMLY ON THE HIGH PENNACLE OF AMERICAN FAITH MY GENTLY FLUTTERING FOLDS HAVE PROVED AN INSPIRATION TO UNTOLD MILLIONS. MEN HAVE FOLLOWED ME INTO BATTLE WITH UNWAVERING COURAGE. THEY HAVE LOOKED UPON ME AS A SYMBOL OF NATIONAL UNITY. THEY HAVE PRAYED THAT THEY AND THEIR FELLOW CITIZENS MIGHT CONTINUE TO ENJOY THE LIFE, LIBERTY AND PURSUIT OF HAPPINESS, WHICH HAVE BEEN GRANTED TO EVERY AMERICAN AS THE HERITAGE OF FREE MEN. SO LONG AS MEN LOVE LIBERTY MORE THAN LIFE ITSELF; SO LONG AS THEY TREASURE THE PRICELESS PRIVILEGES BOUGHT WITH THE BLOOD OF OUR FOREFATHERS; SO LONG AS THE PRINCIPLES OF TRUTH, JUSTICE AND CHARITY FOR ALL REMAIN DEEPLY ROOTED IN HUMAN HEARTS. I SHALL CONTINUE TO BE THE ENDURING BANNER OF THE UNITED STATES OF AMERICA.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 84

weather
(rain or shine, it's always there)

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
WEATHER OBSERVATIONS

FORM# 85

GROUP_______________ DATE_______________ TIME_______________

1. Present temperature in degrees and Farenheit _________
   Maximum temperature for last 24 hours _________
   Minimum temperature for last 24 hours _________

2. Barometer reading (nearest 1/100 of inch) _________
   Direction of change: Rising_______ Falling_______ Steady_______
   NOW: Reset hand pointer on Barometer to match present reading.

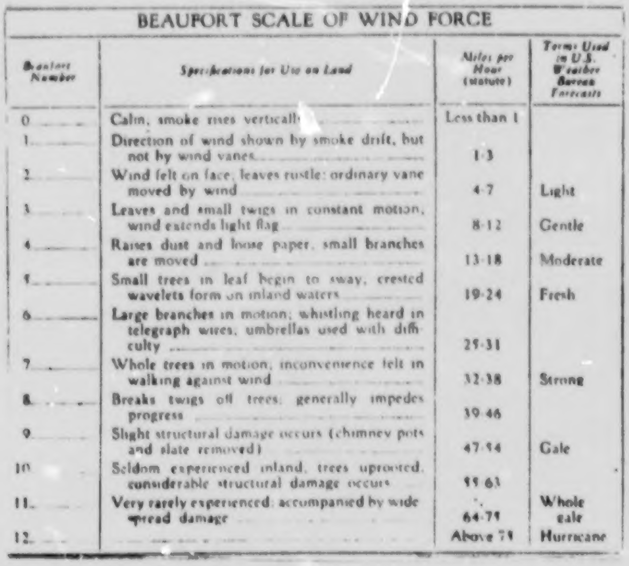
3. Relative humidity _________

4. Sky condition: Fair; Clearing; Increasing Cloudiness; Partly Cloudy; Cloudy

5. Cloud type present: CIRRUS: CIRRO STRATUS: ALTO STRATUS: STRATUS: NIMBO STRATUS:
   CIRRO CUMULUS: ALTO CUMULUS: CUMULUS: STRATO CUMULUS: CUMULO NIMBUS

6. Measurable rainfall since last reading to nearest 1/100" inch_________
   Rainfall since last 24 hours_________ NOW: Empty rain gauge_________

7. Wind coming from what direction? N-NE - E - SE - S - SW - W - NW
   Wind velocity using Beaufort Scale_______miles per hour



BEAUFORT SCALE OF WIND FORCE

Beaufort Number	Specifications for Use on Land	Miles per Hour (statute)	Terms Used in U.S. Weather Bureau Forecasts
0	Calm, smoke rises vertically	Less than 1	
1	Direction of wind shown by smoke drift, but not by wind vanes	1-3	
2	Wind felt on face, leaves rustle; ordinary vane moved by wind	4-7	Light
3	Leaves and small twigs in constant motion, wind extends light flag	8-12	Gentle
4	Raises dust and loose paper, small branches are moved	13-18	Moderate
5	Small trees in leaf begin to sway, crested wavelets form on inland waters	19-24	Fresh
6	Large branches in motion; whistling heard in telegraph wires, umbrellas used with difficulty	25-31	
7	Whole trees in motion, inconvenience felt in walking against wind	32-38	Strong
8	Breaks twigs off trees; generally impedes progress	39-46	
9	Slight structural damage occurs (chimney pots and slate removed)	47-54	Gale
10	Seldom experienced inland, trees uprooted, considerable structural damage occurs	55-63	
11	Very rarely experienced; accompanied by wide spread damage	64-75	Whole gale
12		Above 75	Hurricane

8. Lake condition:
   Surface: Smooth; Choppy; Rippled; Windswept
   Below surface: Clear to what depth?_______Murky; Cloudy; Muddy
   Water temperature _________

WEATHER FORECAST

____

____

ACTUAL FORECAST

____

____

Red sky at night,
Sailor's delight
Red sky in morning,
Sailor take warning

More truth than
poetry?

Evening red and morning gray
Helps the traveler on his way;
Evening gray and morning red,
Brings rain down upon his head.

WEATHER SIGNS

Look for cloudy unsettled weather when

The barometer is falling.
The temperature at night is higher than usual.
The clouds move in different directions at different levels.
High thin white clouds (cirrus) increase. A large ring appears around the sun or moon and stays there until the overcast clouds thicken and obscure the sun or moon.
Summer afternoon clouds darken.

Look for steady precipitation when

There have been signs of unsettled weather and -
The wind is south or southeast, the pressure falling.
 Rain (or snow) within a day if pressure falling slowly.
 If falling rapidly, rain soon with winds increasing.
The wind is southeast to northeast, the pressure falling.
 Rain (or snow) soon.
Thunderclouds developing against a south or southeast wind.

Look for showers when

Thunderclouds develop in a westerly wind.
Cumulus clouds develop rapidly in the spring or summer early afternoon.

Look for clearing weather when

The barometer rises.
The wind shifts into the west or northwest.
The temperature falls.

Look for continued bright weather when

You can look directly at the sun when it sets like a ball of fire.
The barometer is steady or slowly rising.
Cloudiness decreases after 3 p.m. or 4 p.m.
Morning fog breaks within two hours after sunrise.
There is a light breeze from the west or northwest.
There is a red sunset.

Look for higher temperatures when

The barometer falls. In summer a falling barometer may indicate cloudy weather which will be cooler than clear weather.
The wind swings away from the north or the west.
When the morning sky is clear, except when the barometer is high or is rising in the winter-time, or if the wind is strong from the north or west.

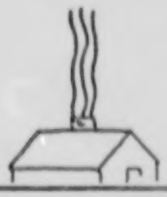
Look for lower temperatures when

The wind swings from the southwest into the west, or from the west into the northwest or north.
When skies are clearing - (although clearing skies in the morning will likely mean warmer weather by afternoon, particularly in the summer).
In the winter, the barometer rises.
Snowflurries occur with a west or north wind.
Pressure is low and falling rapidly, wind east or northeast and backing slowly into north. (The fall in temperature will be gradual.)

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 87

WIND FORCE SCALE

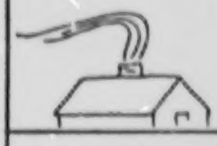
Adapted from the Beaufort Scale



Smoke rises
straight up.

Less than
1 mile per hour.

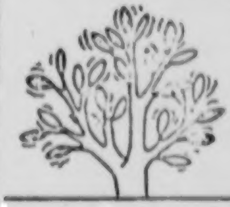
CALM ⓪



Smoke drifts;
weather vanes still.

1-3 miles per hour.

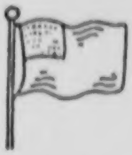
LIGHT AIR ①



Leaves rustle and
weather vanes move.

4-7 miles per hour.

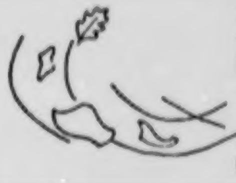
SLIGHT BREEZE ②



Leaves and small twigs
in constant motion;
light flag extended.

8-12 miles per hour.

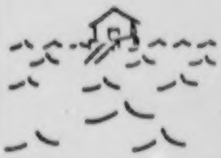
GENTLE BREEZE ③



Dust, dry leaves, loose
papers raised; small
branches move.

13-18 miles per hour.

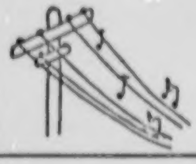
MODERATE BREEZE ④



Small trees in leaf start
to sway; crested wavelets
form on inland waters.

19-24 miles per hour.

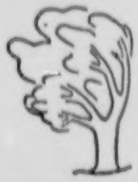
FRESH BREEZE ⑤



Large branches in motion;
umbrellas hard to hold;
telephone wires whistle.

25-31 miles per hour

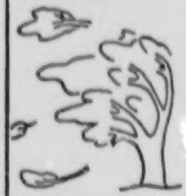
STRONG BREEZE ⑥



Whole trees in motion;
walking against wind
difficult.

32-38 miles per hour.

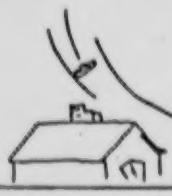
MODERATE GALE ⑦



Twigs break off
the trees.

39-46 miles per hour.

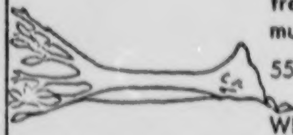
FRESH GALE ⑧



Slight building
damage.

47-54 miles per hour.

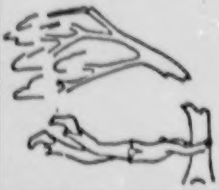
STRONG GALE ⑨



Seldom happens inland;
trees uprooted;
much damage.

55-63 miles per hour.

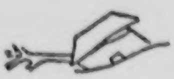
WHOLE GALE ⑩



Very rare; much
general damage.

64-72 miles per hour.

STORM ⑪



Anything over
73 miles per hour is a
HURRICANE ⑫

Form #88.

LINDBERGH SCHOOL DISTRICT
OUTDOOR EDUCATION PROGRAM
WEATHER RECAP

DATE	TEMP	MAX/MIN	BAR	HUMID	SKY	CLOUDS	R.F.	WIND VEL.	LAKE

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 89

FIRE AND TORNADO PROCEDURES

FIRE:

In case of a fire alert all campers and their counselors and teachers should evacuate the buildings immediately. Teachers should have a list of campers who are housed in the building which they are all assigned readily available where attendance can be checked.

Upon hearing the alert all campers and staff should move to a position of safety away from the cabin. As soon as a staff member has moved the campers to a safe distance from the building, roll should be called to determine if all campers are accounted for.

TORNADO - INSIDE

1. Camp director will alert faculty of threatening weather, if possible.

2. Alert in such a way so as to minimize anxiety.

3. When alert is given of impending weather turbulance by camp director, the following procedures should be observed:

   a. Protect against flying objects such as glass, limbs, etc.
   b. Utilize the protection of solid walls, desks, etc.
   c. Occupy space close to the floor with head covered, if possible.
   d. Remain in designated areas until all clear signal is given.

TORNADO - OUTSIDE

1. Move to clear area as far from large trees as possible.

2. Lie prone on the ground in a depression or ditch, if available. Large boulders and steep hillsides can give real protection against flying objects.

3. Campers should be kept in relatively close proximity in order that staff personnel are immediately available.

4. Stay close to ground with head covered if possible, until all clear is given by staff personnel.

Form #90

get acquainted

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
SUNDAY TEACHERS AND COUNSELORS MEETING
FORM# 91

Counselors and teachers introduce selves
All have sheets and blankets, if not, let Nurse know
Nurse has given you a list of medicine to be taken! This is privileged information, say nothing
All medicine turned in?
All flashlights collected?

GENERAL INSTRUCTIONS:
- post and review job duties for cabin bellringers & individual daily assignments
- post daily schedule
- stay out of each others cabins
- keep your group out of each others cabins
- keep your students in groups ALWAYS
- potty all children before field trips and meals
- be firm - not too friendly
- no rough stuff
- no pillow fights
- NO SMOKING in cabin
- NO SMOKING in front of children
- in front of children - all adults are - MR. - MISS - MRS.
- DO NOT change bunk assignments unless OK from Nurse and Principal
- watch sleepwalkers and bed-wetters, report any problems
- report homesickness
- report constipation of children
- report plumbing problems, light bulbs, hot and cold water malfunction to Director
- check with Director on day you may go out before Reveille
- keeps doors unlocked

MEAL TIME:
- set example
- pass entire plate when food is requested
- sample all food
- review manners - holding of knife, fork and spoon
- no cookies first - put 'em back - UGH!
- elbows on table
- HOST - HOSTESS - introduce guest
- compliment food (apple butter, biscuits, sour cream)
- magic words - PLEASE - THANK YOU
- clean up .. only 2 - host or hostess and hopper
- discuss with secretary report of personal happenings
- have weather report ready

FIELD ACTIVITIES:
- review assignments -NOTE: -you may not be with your group
- Nurse and Principal location
- be on time
- have handouts ready
- have equipment ready
- have clipboards ready
- pencils sharpened
- no change in assignments without Principal's OK
- check to be sure all clothing is proper
- in field assist by keeping group together
- take small groups as assigned by teacher
- be alert for hazards
- avoid snakes
- if anyone is bitten - send for help - DO NOT SEND VICTIM
- set up microscope
- assist by teaching
- dissect fish
- return equipment to trailer

IF LOST:
- wait for ringing of bells - honking horns - DO NOT CROSS FENCES

ANIMAL REPORTS:
- keep animals in cabins
- "this is your life"
- professor interviews Mother and family
- class setting

FLAG DETAIL:
- note various pages
- careful of knot

SKIT:
- books in library
- form 85 for developing additional ideas and judging
- any piano or guitar players - singers- magicians

FEEDING AND WATERING OF STOCK:

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
SUNDAY COUNSELORS AND TEACHERS MEETING

FORM# 92

WEATHER:
- maximum - minimum - barometer- wind- wind directions

FISH:
- keep all except bass

TORNADO -FIRE:
- review instructions

SNACKS ON PORCH:
- help keep area clean of paper cups and wrappings

BED TIME:
- shower every night
- write assignments for showers on form #100
- 1 person in shower area - set time if necessary
- assign others - get P.J.'s ready
- write letters
- each straighten up own area for easier inspection
- check thermostats - 68°
- leave outside lights on ALL night
- you may tell story
- lights out at TAPS

ART PACKETS:
- 2 scissors
- Elmers glue
- masking tape
- box of crayolas - 8 colors
- 12 x 18 assorted colors paper
- 2 Magic Markers
- bunk tags
- mail box

EVALUATION SHEETS:
- complete 1 per activity

"Farmer Jones"

PERSONAL TIME:

free time - Monday - Wednesday group 9:45 PM - 11:00 PM
Tuesday Thursday group 9:45 PM - 11:00 PM
at Recreation Lodge - not on or in lake

day free time: OK to boat if you have life jacket and you check out and in with Principal

PLEASE - NO SODA IN FRONT OF CHILDREN

DON'T FORGET HOMEWORK

INSPECTION:
- cabin - clean up!
- waste cans
- toiletry regulations

LOCATION OF:
- Nurse
- Principal
- Director
- Office

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 93

CAMPERS INSTRUCTIONS

1. Do follow instructions of counselors or teacher immediately.
2. Do not go to the lake without a counselor or a teacher.
3. Do stay with your group, counselor or teacher at all times.
4. Do wear your name tag at all times. It's your ticket of admission.
5. Do take your shower when getting ready for bed, and climb into your bunk and either read, rest or write letters.
6. Do have only one camper in the shower area at a time.
7. Do come promptly to assembly area on sounding of bell.
8. Do remain outside the dining hall until invited in.
9. Do eat all you take.
10. Do remain standing at your table with hats removed, upon entering hall. Sit down upon signal.
11. Do be courteous and polite at all times.
12. Do use please and thank you.
13. Do report any bite, scratch, sprain or illness to your counselor or teacher and then the nurse.
14. Do report to the nurse before each meal in the dining hall for your medicine.
15. Do not take reels and fishing rolds or poles without counselor being present.
16. Do return fishing rods and reels to racks.
17. Do stay with your group leader.
18. Do change clothes.
19. Do wash before each meal.
20. Do turn in your flashlights on request of leader.
21. Clean up equipment in cabin:

Dry Mop
Broom
Dust Pan

Waste Can
Ajax
Scrub Cloth
Kleenex

Available behind the kitchen

Wet Mop
Wringer

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form# 94

SUNDAY EVENING SCHEDULE

Nurse will visit, explain, discuss, and leave inspection sheet

5:15 1. Hopper from each cabin reports with washed hands (camper from bunk #2)

2. Weather observation Cabin 4

Hoppers' Duties: Hands washed???

Stand at assigned tables awaiting instructions

Fill milk pitchers 4 inches from top

Pour 3/4 glass of milk from pitcher or carton for each camper

Put a napkin at each place

Refill milk pitchers 1/4 full and return to table

Place all filled serving dishes at your table

Stand back at the table when all chores are taken care of, thus signaling you are ready.

5:25 Cabin 8 ring bell for all to assemble outside dining hall

5:30 Principal opens cafeteria doors only when all food is on the table

Review of all graces by Music Teacher! Grace is led by Group 12

All are seated on direction of Principal

Supper -- Host or hostess introduces guests and counselors to campers at his or her table.

Hoppers refill plates as needed for seconds

At the conclusion of the meal, demonstration of Hopper duties

6:10 Weather report Cabin 4
Announcements
Self-introduction of staff and guests
Cabin 12 leads song of their choice.

6:15 Cabin 1 and 2 leave for Flagpole -- understand flag folding directions

Cabin 8 Bell Ringers leave to feed stock

6:20 Rest of Camp leave under direction of Principal to go to flagpole for flag ceremonies.

Music under direction of music personnel at flagpole

SUNDAY EVENING SCHEDULE

	Tour from the flagpole Cabin 8 feed the stock
7:00 P.M.	Staff meets with Director
7:00	Music Teacher reviews "Hail Camp Mo-Val" and other favorites
7:30	Story time by librarian
8:10	Activities directed by P.E. instructors and counselors
8:35	Review camper instructions and post in cabin Snacks served
8:45	To cabins to shower, write letters and bed by 9:30
9:30	Lights out!

Counselors and teachers stay with their cabin all Sunday night. Complete evaluation sheets secured from Principal.

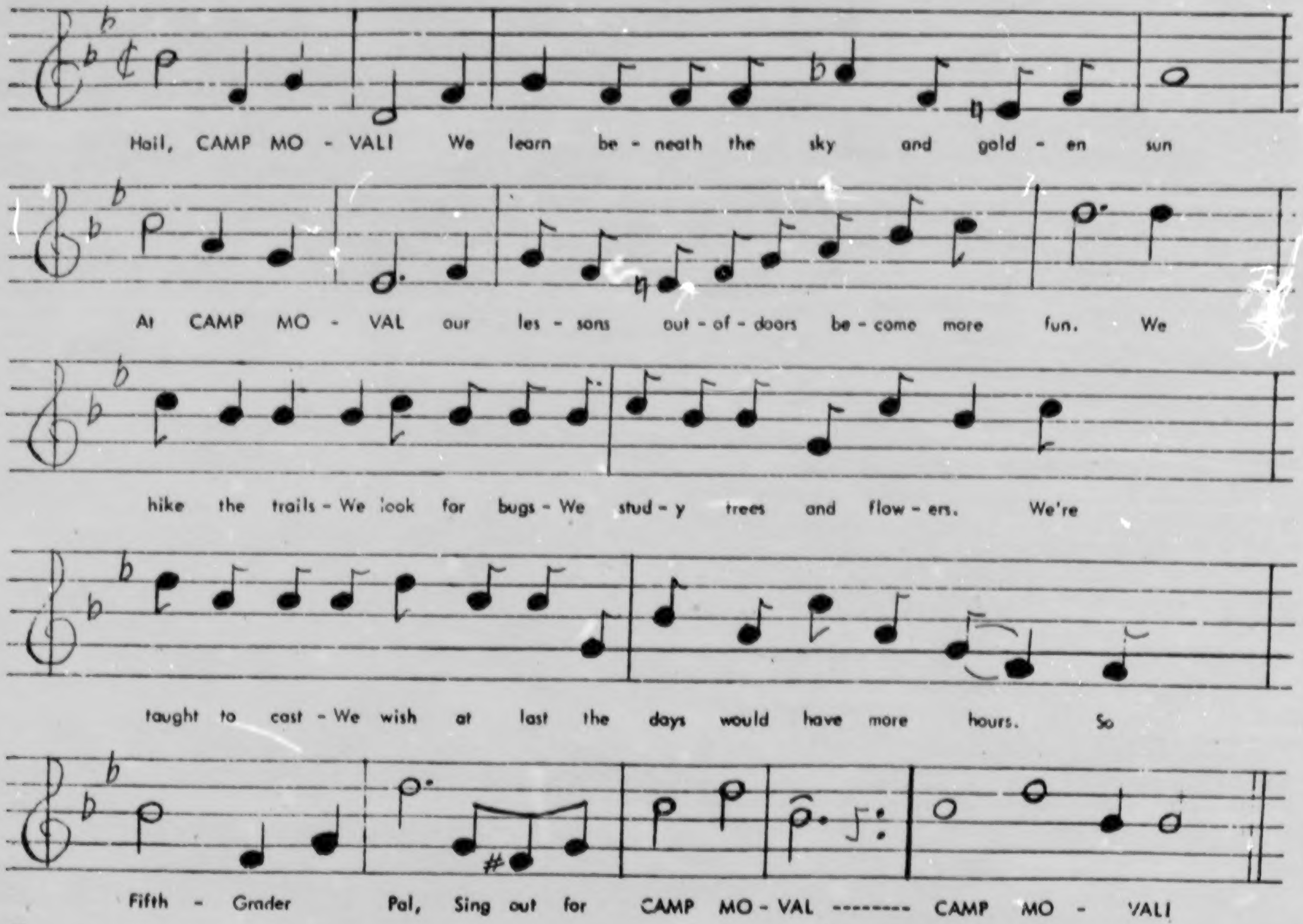
One camper in the bathing area at a time!

music, maestro, please

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

MO-VAL CAMP SONG

FORM # 97


Hail, CAMP MO - VAL! We learn be - neath the sky and gold - en sun
At CAMP MO - VAL our les - sons out - of - doors be - come more fun. We
hike the trails - We look for bugs - We stud - y trees and flow - ers. We're
taught to cast - We wish at last the days would have more hours. So
Fifth - Grader Pal, Sing out for CAMP MO - VAL -------- CAMP MO - VAL!

Sept. 1968 - Words & Music by Nelle Tapperson; 5th Gr. Teacher, Concord Sch.

Form # 98

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TABLE OF CONTENTS

SONG	NUMBER	FORM #
Patriotic Songs	1 to 14	
Marching Songs	15 to 17	
Spirituals	18 to 27	
Fellowship	28 to 58	
Part Songs and Rounds	59 to 78	
Graces	79 to 84	
Action Songs	85 to 97	

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All Night, All Day.............24

America............. 7

America's Creed.............13

America - Our Heritage.............12

America the Beautiful............. 8

Ants Go Marching.............16

Battle Hymn of the Republic............. 2

Bear Song.............44

The Birdie Song.............85

Bless This Camp.............82

Bones.............35

Canoe Song.............73

Chimes Grace.............81

Clementine.............40

Form # 99

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
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The Desperado	87	
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Down in the Valley	53	
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Erie Canal	39	
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For Health and Strength	83	
French Cathedral	72	
Frogs	31	
From Maine to California	3	
God Bless America	5	
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He's Got the Whole World	21	
Hello	69	
Hole in the Bottom of the Sea	37	
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If All the Raindrops	89	

Form# 100

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
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Kum Ba Yah	19	
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Little Pile of Tin	91	
Lonesome Valley	27	
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Mein Hands	30	
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Michael, Row the Boat Ashore	34	
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Form # 101

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
ALPHABETICAL INDEX

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Round of Thanks	79	
Row Your Boat	67	
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Six Little Ducks	96	
Sixpence	62	
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LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
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Form# 103

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
PATRIOTIC SONGS

1. STAR SPANGLED BANNER

Oh-Say - Can you see
By the dawn's early light
What so proudly we hail'd
At the twilight's last gleaming
Whose broad stripes and bright stars
Through the perilous fight
O'er the ramparts we watch'd
Were so gallantly streaming.
And the rocket's red glare,
The bomb's bursting in air,
Gave proof through the night
That our flag was still there.
Oh, ---Say, does that star-spangled banner
Yet wave - o'er the land of the free
And the home of the brave.

2. BATTLE HYMN OF THE REPUBLIC

Mine eyes have seen the glory of
the coming of the Lord,
He is trampling out the vintage
where the grapes of wrath are stored,
He hath loosed the fateful lightning
of his terrible swift sword
His truth is marching on

Chorus
GLORY! GLORY! HALLELUJAH!
GLORY! GLORY! HALLELUJAH!
GLORY! GLORY! HALLELUJAH!
HIS TRUTH IS MARCHING ON

3. FROM MAINE TO CALIFORNIA

From Maine to sunny California,
Where our flag is flying high,
Waving proudly cross the sky,
From Washington right down to Georgia.
When we see the flag appear,
We give a cheer!
The stars and stripes lead on to glory
Wherever men love liberty,
It tells the world our nation's story
From Hawaii to Alaska see Old Glory flying
free.

4. YOU'RE A GRAND OLD FLAG

You're a grand old flag, you're a high flying flag
And forever in peace may you wave;
You're the emblem of the land I love,
The home of the free and the brave.
Ev'ry heart beats true, under red, white & blue
Where there's never a boast or brag;
But, should auld acquaintance be forgot,
Keep your eye on the grand old flag.

5. GOD BLESS AMERICA

God bless America, land that I love,
Stand beside her, and guide her
Through the night with a light from above,
From the mountains to the prairies,
To the oceans white with foam,
God bless America, my home sweet home.
God bless America, my home sweet home.

6. THIS LAND IS YOUR LAND

This land is your land, - this land is my land
From California to the New York Island,
From the Redwood forest -
To the Gulfstream waters,
This land was made for you and me.

As I went walking - that ribbon of highway
I saw above me - that endless skyway,
I saw below me- that golden valley,
This land was made for you and me.

When the sun came shining
And I was strolling,
And the wheat fields waving -
And the dust clouds rolling,
As the fog was lifting - a voice was chanting,
This land was made for you and me.

Repeat Verse 1

7. AMERICA

My country, 'tis of thee
Sweet land of liberty, of thee I sing
Land where my fathers died;
Land of the pilgrim's pride;
From every mountain side - let freedom ring.

Form# 104

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
PATRIOTIC SONGS

8. AMERICA THE BEAUTIFUL

O beautiful for spacious skies,
For amber waves of grain,
For purple mountain majesties
Above the fruited plain;
America! America!
God shed his grace on thee,
And crown thy good with brotherhood,
From sea to shining sea

9. GREEN TREES

Green trees around us, Blue skies above,
Friends all around us
In a world filled with love.
Taps sounding softly, hearts beating true
As we all say "Goodnight" to you.

10. TAPS

Day is done, gone the sun
From the lake, from the hill, from the sky
All is well, safely rest,
God is nigh.

11. THIS IS MY COUNTRY

This is my country, land of my birth
This is my country, grandest on earth.
I pledge thee my allegiance,
America the bold!
For this is my country,
To have and to hold.

No matter if we hail
From North or South
Or from the East or West.
My heart is filled with love
For all of these,
I only know I swell with pride
And deep within my breast
I thrill to see Old Glory
Paint the breeze. . .For. . .This is...

12. AMERICA - OUR HERITAGE with

High towering mountains, fields gold with/grain,
Rich fertile farmlands, flocks on the plain,
Homes blest with peace, with love,
without fears,
This is the heritage we've kept through
through the years.
Stout hearts and true, held fast what is ours
God give us courage through darkest hours
God give us strength and guide with Thy hand
America, our heritage, our homeland.

13. AMERICA'S CREED

ALL: I believe in the United States of
America as a government
#1: of the people
#2: by the people
ALL: for the people
SOLO: A democracy in a republic and a
sov'reign nation of many sov'reign
states,
#1: A perfect union
#2: A perfect union
ALL: One and inseparable
SOLO: Established upon those principles of
justice, equality and humanity for
which all American patriots sacrificed
their lives and fortunes.
ALL: I, therefore, believe it is my duty to
my country
#1: to love it
#2: to support its constitution
#1: to obey its laws
#2: to respect its flag
ALL: and to defend it--defend it against its
enemies.

14. MARINE'S HYMN

From the halls of Montezuma
To the shores of Tripoli
We will fight our country's battles
In the air, on land and sea.
First to fight for right and freedom
And to keep our honor clean;
We are proud to claim the title
Of United States Marines.

Form # 105

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
MARCHING SONGS

15. MARCHING TO PRETORIA

I'm with you and you're with me,
And so we are all together,
So we are all together,
So we are all together.
Sing with me, I'll sing with you,
And so we will sing together

Chorus:
As we march along
We are marching to Pretoria,
Pretoria, Pretoria,
We are marching to Pretoria,
Pretoria, Hurrah!

We have food, the food is good,
And so we will eat together,
So we will eat together.
When we eat, 'twill be a treat,
And so let us sing together -
Repeat Chorus:

16. ANTS GO MARCHING (Tune: When Johnny Comes Marching Home)

1. The ants go marching one by one, Hurrah, Hurrah!
The ants go marching one by one, Hurrah, Hurrah!
The little one stops to shoot his gun

REFRAIN: They all go marching down - to the earth-
to get out of the rain - boom, boom, boom.

2. The ants go marching two by two, Hurrah, Hurrah!
The ants go marching two by two, Hurrah, Hurrah!
The little one stops to tie his shoe REPEAT REFRAIN

3. The ants go marching three by three, Hurrah, Hurrah!
The ants go marching three by three, Hurrah, Hurrah!
The little one stops to climb a tree REPEAT REFRAIN

4. The ants go marching four by four, Hurrah, Hurrah!
The ants go marching four by four, Hurrah, Hurrah!
The little one stops to shut the door REPEAT REFRAIN

5. The ants go marching five by five, Hurrah, Hurrah!
The ants go marching five by five, Hurrah, Hurrah!
The little one stops to take a dive REPEAT REFRAIN

6. The ants go marching six by six, Hurrah, Hurrah!
The ants go marching six by six, Hurrah, Hurrah!
The little one stops to play some tricks REPEAT REFRAIN

7. The ants go marching seven by seven, Hurrah, Hurrah!
The ants go marching seven by seven, Hurrah, Hurrah!
The little one stops to look at heaven REPEAT REFRAIN

V8. The ants go marching eight by eight, Hurrah! Hurrah!
The ants go marching eight by eight, Hurrah, Hurrah!
The little one stops to shut the gate REPEAT REFRAIN

V9. The ants go marching nine by nine, Hurrah, Hurrah!
The ants go marching nine by nine, Hurrah, Hurrah!
The little one stops to pick up a dime REPEAT REFRAIN

V10. The ants go marching ten by ten, Hurrah, Hurrah!
The ants go marching ten by ten, Hurrah, Hurrah!
The little one stops to get the hen REPEAT REFRAIN

17. WHEN THE SAINTS GO MARCHING IN

Oh when the saints - go marching in
Oh when the saints go marching in
Oh Lord, I want to be in that number,
When the saints go marching in.

Form # 106

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
SPIRITUALS

18. JACOB'S LADDER

(A) We are climbing Jacob's ladder,
We are climbing Jacob's ladder,
We are climbing Jacob's ladder,
Soldiers of the Cross

(B) Every round goes higher, higher
Every round goes higher, higher
Every round goes higher, higher
Soldiers of the Cross

(C) Sinner, do you love my Jesus?...
(D) If you love him why not serve him?...
(E) We are climbing higher, higher

19. KUM BA YAH

Kum ba yah, my Lord
Kum ba yah
Kum ba yah, my Lord
Kum ba yah
Kum ba yah, my Lord
Kum ba yah
Oh, Lord, Kum ba yah

(A) Someone's crying Lord, Kum ba yah
(B) Someone's singing, Lord, Kum ba yah
(C) Someone's praying, Lord, Kum ba yah

20. I'M GONNA SING

I'm gonna sing
When the Spirit says sing
I'm gonna sing
When the Spirit says sing
I'm gonna sing
When the Spirit says sing
And obey the Spirit of the Lord

(A) I'm gonna shout, etc.
(B) I'm gonna preach, etc.
(C) I'm gonna pray, etc.

21. HE'S GOT THE WHOLE WORLD

(A) He's got the whole world in his hands
(repeat 3 times)
(B) He's got the wind and the rain in his hands
(repeat 3 times)
(C) He's got the tiny little baby in his hands
(repeat 3 times)
(D) He's got you and me, brother, in his hands
(repeat 3 times)
(E) He's got everybody in his hands
(repeat 3 times)

22. WHO DID

(A) Who did, who did, who did, who did
Who did swallow Jo-Jo-Jo-Jo (Repeat
these two lines--3 times)
Who did swallow Jonah, Who did swallow
Jonah? Who did swallow Jonah down?
(B) Whale did, whale did, whale did, whale did
Whale did swallow Jo-Jo-Jo-Jo-
(Repeat these 2 lines -- 3 times)
Whale did swallow Jonah
Whale did swallow Jonah
Whale did swallow Jonah
(C) Daniel, Daniel, Daniel, Daniel
Daniel in the Li-Li-Li-Li
(Repeat these 2 lines -- 3 times)
Daniel in the lion's
Daniel in the lion's
Daniel in the lion's den.
(D) Gabriel, Gabriel, Gabriel, Gabriel
Gabriel, blow your trump, trump, trump
trump (Repeat these 2 lines -- 3 times)
Gabriel blow your trumpet
Gabriel blow your trumpet
Gabriel blow your trumpet loud.

23. SWING LOW, SWEET CHARIOT

Swing low, sweet chariot, coming for to
carry me home
Swing low, sweet chariot, coming for to
carry me home.
I looked over Jordan and what did I see,
Coming for to carry me home
A band of angels coming after me,
Coming for to carry me home.

If you get up there before I do,
Coming for to carry me home,
Just tell my friends I'm coming too
Coming for to carry me home.

I'm sometimes up and sometimes down
Coming for to carry me home
But still my soul feels heavenly bound
Coming for to carry me home.

24. ALL NIGHT, ALL DAY

All night, all day angels watchin' over me,
my Lord
All night, all day, angels watchin' over me.
Verse 1: Now I lay me down to sleep
Angels watchin' over me, my Lord
Pray the Lord my soul to keep
Angels watchin' over me.

Form# 107

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
SPIRITUALS

24. ALL NIGHT, ALL DAY (con't)

Verse 2: If I live another day
Angels watchin' over me, my Lord
Pray the Lord to guide my way
Angels watchin' over me.
Verse 3: If I die before I wake (Repeat "Angels...)
Pray the Lord my soul to take (" ")

25. AIN'T GONNA GRIEVE MY LORD

A. Oh, I wanna go to heaven
I wanna go to heaven
An' I wanna go right
I wanna go right
I wanna go to heaven
I wanna go to heaven
All dressed in white
All dressed in white
Oh, I wanna go to heaven
An' I wanna go right
I wanna go to heaven
All dressed in white
I ain't gonna grieve my Lord no more
CHORUS:
I ain't gonna grieve my Lord no more,
I ain't gonna grieve my Lord no more,
I ain't gonna grieve my Lord no more.
B. Oh, you can't go to heaven
In a rockin' chair
Get down on your knees (Repeat these
And say a prayer 2 lines)
I ain't gonna grieve my Lord no more.
C. Oh, you can't go to heaven on roller skates
You'll roll right by those (repeat these
pearly gates 2 lines)
I ain't gonna grieve my Lord no more.
D. "That's all there is, there ain't no more"
Saint Peter said (Repeat these
As he closed the door 2 lines)
I ain't gonna grieve my Lord no more.

26. DOWN BY THE RIVERSIDE

1. I'm gonna lay down my burden
Down by the riverside (3 times)
CHORUS: (Repeat each line 3 times)
I ain't gonna study war no more.
2. I'm gonna lay down my sword and shield
3. I'm gonna shake hands around the world
4. I'm gonna lay down my long white robe

27. LONESOME VALLEY

Jesus walked this lonesome valley;
He had to walk it by himself
Oh, nobody else can walk it for Him
He had to walk it by himself.

We must walk this lonesome valley;
We have to walk it by ourselves.
Oh, nobody else can walk it for us,
We have to walk it by ourselves.

Form# 108

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FELLOWSHIP

28. LIFE IN THE ARMY

The biscuits in the army they say are mighty fine,
But one rolled off the table & killed a pal of mine

CHORUS:
Oh, I have had enough of army life
Gee Ma, I wanna go; Hey, Ma, I gotta go,
Gee Ma, I wanna go home.

The coffee in the army they say is mighty fine
It looks like mud and water and tastes like iodine
(Repeat Chorus)

The chicken in the army they say is mighty fine
But once the drumsticks got up and started
beating time (Repeat Chorus)

29. SHE'LL BE COMIN' ROUND THE MOUNTAIN

She'll be comin' round the mountain when she
comes (when she comes)
She'll be drivin' six white horses when she
comes (Whoo, back)
Oh, we'll kill the old red rooster when she
comes (hack, hack)
Oh, we'll all have chicken and dumplings
when she comes (Yum, Yum)
Oh, we'll all go out to meet her when she
comes (Hi, Babe)

30. MEIN HANDS

Mein hands by mein sides, was ist das hier?
Das ist mein hair mopper, mein teacher dear.
Hair mopper, duvenicka von du,
Dat's what we learn in der schul....

2. Think boxer
3. Eye blinker
4. Smell sniffer
5. Soup sipper
6. Chin chopper
7. Rubber necker
8. Chest protector
9. Bread Basket
10. Lap sitter
11. Knee bender
12. Road runner
13. Flat footer

31. THE FROGS

Hear the lively song of the
frogs in yonder pond
Crick, crick, crick-i-ty, crick

Br-r-r--ump!

32. MY HAT

My hat it has three corners
Three corners has my hat
And had it not three corners
It would not be my hat

33. CUCKOO

Oh, I went to the flowing spring where
the water's so good,
And I heard there the cuckoo as she
called from the wood.

CHORUS:
HO--LI--AH---
Ho-Le-Rah-Hi-Hi-Ah, Ho-Le-Rah Cuckoo
Ho-Le-Rah-Hi-Hi-Ah, Ho-Le-Rah Cuckoo
Ho-Le-Rah-Hi-Hi-Ah, Ho-Le-Rah Cuckoo
Ho-Le-Rah-Hi-Hi-Ah, Ho.

When I've married my maiden fair
what then can I desire,
Oh, for a home for here tending and
some wood for the fire.
REPEAT CHORUS

After Easter comes sunny days that will
melt all the snow;
Then I'll marry my maiden fair we'll be
happy I know.

34. MICHAEL ROW THE BOAT ASHORE

A. Michael row the boat ashore
HALLELUJAH!
B. Michael's boat a gospel boat
C. River Jordan's deep and wide
Help us reach the promised land
D. Sinner won't you lend a hand,
Help us reach the promised land
E. Sister, help to trim the sail
Sister, save your soul from hell
F. Trumpet sound the jubilee
Trumpet sound for you and me

35. BONES

A. Oh, the toe bone connected to the
foot bone
Foot bone - ankle bone
Ankle bone - leg bone
Oh, didn't it rain----------
B. Oh, the leg bone--knee bone
Knee bone - thigh bone
Thigh bone - hip bone
C. Oh, hip bone - back bone
Back bone - neck bone
Neck bone - head bone
D. Oh, finger bone - hand bone
Hand bone - elbow bone
Elbow bone - shoulder bone

35. BONES (con't)

E. Oh, shoulder bone - back bone
Back bone - neck bone
Neck bone - headbone
Oh, didn't it rain-------------

36. THERE WAS AN OLD WOMAN

There was an old woman who swallowed a fly
And I don't know why she swallowed a fly
Perhaps she'll die.

There was an old woman who swallowed a spider
That wiggled and juggled and tickled inside her
She swallowed a spider
To swallow a fly.
CHORUS: And I don"t know why she swallowed a fly
Perhaps she'll die.

- - -who swallowed a bird
How absurd to swallow a bird. She swallowed a bird.
She swallowed a spider
To swallow a fly (Chorus)

- - -who swallowed a cat
Imagine that - to swallow a cat.
She swallowed a cat
To swallow a bird
To swallow a spider
To swallow a fly (Chorus)

- - -who swallowed a dog
What a hog to swallow a dog.
She swallowed a dog
To swallow a cat
To swallow a bird
To swallow a spider
To swallow a fly (Chorus)

- - -who swallowed a goat
Just opened her throat and swallowed a goat
She swallowed a goat
To swallow a dog - To swallow a cat
To swallow a bird - To swallow a spider
To swallow a fly. (Chorus)

- - -who swallowed a cow
I don't know how she swallowed a cow
She swallowed a cow
To swallow a goat - To swallow a dog
To swallow a cat- To swallow a bird
To swallow a spider - To swallow a fly. (Chorus)

There was an old woman who swallowed a horse
She's dead of course.

37. HOLE IN THE BOTTOM OF THE SEA

1. There's a hole in the bottom of the sea
There's a hole in the bottom of the sea
There's a hole
There's a hole
There's a hole
In the bottom of the sea
2. There's a log in the hole
3. There's a bump
4. There's a frog
5. There's a wart
6. There's a hair
7. There's a flea
8. There's a pimple
9. There's a molecule
10. There's an atom
11. There's an electron
12. There's an ugh!

38. RAM SAM SAM

A. A ram sam sam
B. A Ram Sam Sam
C. Guli, Guli Guli Guli
D. Guli, Ram Sam Sam

A-re-fe, A-re-fe, Guli, Guli
Guli, Guli, Guli, Ram Sam Sam

39. ERIE CANAL

I've got a mule her name is Sal,
Fifteen years on the Erie Canal.
She's a good old worker and a good old pal,
Fifteen years on the Erie Canal.
We've hauled some barges in our day
Filled with lumber, coal and hay,
And ev'ry inch of the way we know
From Albany to Buffalo.

Low bridge, everybody down!
Low bridge, for we're goin through a town!
And you'll always know your neighbor,
You'll always know your pal,
If you've ever navigated on the
Erie Canal.

40. CLEMENTINE

In a cavern, in a canyon, excavating for a mine,
Lived a miner, forty niner, and his daughter, Clementine.
CHORUS: Oh my darling, Oh, my darling,
Oh, my darling Clementine!
You are lost and gone forever,
dreadful sorry, Clementine

Light she was and like a fairy, and her shoes were number nine
Herring boxes without topses, sandals were for Clementine.

Drove her ducklings to the water, every morning just at nine
Hit her foot against a splinter, fell into the foaming brine.

Ruby lips above the water, blowing bubbles soft and fine
But alas for me, I was no swimmer, so I lost my Clementine.

In a churchyard near the canyon, where the myrtle doth entwine
There grow roses and other posies, fertilized by Clementine.

Then the miner, forty niner, soon began to peak and pine
Thought he oughter jine his daughter, now he's with his Clementine.

In my dreams she still doth haunt me, robed in garments soaked in brine,
Though in life I used to hug her, now she's dead, I'll draw the line.

41. DO YOUR EARS HANG LOW?

Do your ears hang low - do they wobble to & fro?
Can you tie them in a knot - Can you tie them in a bow
Can you throw them over your shoulder like a continental soldier?
Do your ears hang low?

42. MY HIGH SILK HAT

One day as I went down into the subway
My high silk hat
I put down upon the seat beside me
My high silk hat
A big fat lady came and sat upon it
My high silk hat - My high silk hat
REFRAIN:
Christopher Columbus, what do you think of that
A big fat lady sat upon my hat
My hat she broke, now what's the joke
Christopher Columbus, what do you think of that

43. IF I HAD A HAMMER

If I had a hammer, I'd hammer in the morning
I'd hammer in the evening, all over this land
I'd hammer out danger, I'd hammer out a warning
I'd hammer out love between my brothers and my sisters -- all over this land.

If I had a bell, I'd ring it in the morning
I'd ring it in the evening, all over this land
I'd ring out danger, I'd ring out a warning
I'd ring out love between my brothers and my sisters -- all over this land

If I had a son, I'd sing it in the morning
I'd sing it in the evening, all over this land
I'd sing out danger, I'd sing out a warning,
I'd sing out love between my brothers and my sisters -- all over this land.

Well I've got a hammer and I've got a bell and I've got a song to sing all over this land.
It's the hammer of justice, it's the bell of freedom,
It's the song about the love between my brothers and my sisters -- all over this land

44. BEAR SONG

The other day - I saw a bear
Out in the woods - away out there
He looked at me - I looked at him
He sized up me - I sized up him
He said to me - Why don't you run
I see you ain't - got any gun
I said to him - that's a good idea
Come now my feet - Let's up and fleet
And so I ran - Away from there
But right behind me - came the bear
And then I saw - ahead of me
A great big tree - Oh mercy me
The lowest branch - was ten feet up
I had to jump - and trust to luck
And so I jumped - into the air
But I missed that branch - away up there
Now don't you fret - and don't you frown
'Cause I caught that branch - on the way back down
That's all there is - there ain't no more
Unless I see - that bear once more.

45. ON TOP OF SPAGETTI

A. On top of spagetti - all covered with cheese
I lost my poor meatball - when somebody sneezed
B. It rolled off the table - and on to the floor
And then my poor meatball - rolled out of the door
C. It rolled in the garden - and under a bush
And then my poor meatball - was nothing but mush
D. Oh the mush was as tasty - as tasty could be
And early next summer - it grew into a tree
E. Well, the tree was all covered - with beautiful moss
It grew lovely meatballs - and tomato sauce
F. So if you eat spagetti - all covered with cheese
Hold on to your meatball --
And don't ever sneeze

46. DUNDERBECK

CHORUS:
Oh Dunderbeck - How could you be so mean
To ever have invented
A sausage meat machine
Now all the neighbors' cats & dogs
Will never more be seen
Cause they've all been ground to sausage meat in Dunderbeck's machine

DUNDERBECK (continued)

A. There was a man from Briarcliff
His name was Dunderbeck
He sold a lot of sausage & sauerkraut, by heck
He made the greatest sausages that were ever seen
Until one day he invented a sausage meat machine
B. One day a little fat boy came walking in the store
He bought a pound of sausage and laid them on the floor
Then he began to whistle, he whistled up a tune
And all the little sausages went dancing around the room
C. One day the machine got busted - the darn thing wouldn't work
So Dunderbeck, He called his wife to see what made it jerk
His wife, she had a nightmare, she walked in her sleep
She gave the crank a wickety-wack
And Dunderback was meat
D. So if you have some cats & dogs
You'd better keep them locked
Cause if you don't, I'm warning you
You're in for one big shock
If you ever eat some sausage meat
From Dunderbeck right now
You'll hear the little sausages
ME-OW and BoW-WOW-WOW

47. SWINGING ALONG

Swinging along the open road, under a sky that's clear
Swinging along the open road, in the fall of the year
Swinging along, swinging along, swinging along the open road all in the fall of the year.

Counter Melody:
Swinging along the open road,
Swinging along under a sky that's clear.
Swinging along the open road, all in the fall, in the fall of the year.
Swinging along, swinging along, swinging along the open road, all in the fall of the year.

Form # 112

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
FELLOWSHIP

48. LITTLE CABIN IN THE WOODS

Little cabin in the woods
Little man by the window stood
Saw a rabbit hopping by (hop motion w. hand)
Knocking at the door (bang, bang)
Help me - Help me - Help me he cried (jump)
Or the hunter'll shoot me dead (gun)
Little rabbit come inside (wave)
Safely to abide

Each time cut off one line of song,
starting at end

49. DON'T LAUGH WHEN A HEARSE GOES BY

Oh, don't you laugh when a hearse goes by,
For you may be the next one to die
They roll you up in a clean white sheet,
And throw you down about six feet deep.

The ants crawl in; the ants crawl out
The ants play pinnocle on your snout
Your eyes pop out, your stomach turns green
And pus oozes out like fresh whipped cream.

50. WHAT DID DELAWARE

1. What did Delaware, Boy - 4
   She wore a brand New Jersey - 3
   That's what she did wear.
2. What did California - 3
   Was she all alone
   She called to say Hawaii - 3
3. What did Mississippi - Boy - 3
   Thru' her pretty lips
   She sipped a Minnesota - 3
4. Where has Oregon - Boy - 2
   If you want to Alaska
   Alaska where she's gone
   She went to pay her Texas - 3
5. How did Wisconsin, Boy
   She stole a Nebraska
   Too bad that Arkansas, Boy
   And so did Tennessee
   It made poor Florida - Boy - 2
   You see she died in Missouri.
6. What did Io-wa, Boy - 4
   She weighed a Washington - 3
7. What did Ida-ho, Boy - 4
   She hoed her Maryland - Boy - 3
8. Oh, what did Massa-chew, Boy - 4
   She chewed her Connecti-cud, Boy - 3

51. THE TREE IN THE WOOD

1. All in a wood there grew a tree,
   The finest tree you ever did see;
   The tree was in the wood, and the green
   leaves grew all around, a-round, a-round
   And the green leaves grew all a-round.

2. And on this tree there grew a limb,
3. And on this tree there was a branch,
4. And on this branch there was a nest,
5. And in this nest there was an egg,
6. And in this egg there was a bird,
7. And on this bird there was a wing,
8. And on this wing there was a feather.

52. INSPECTION SONG

Down cabin row with a snarl and a snort
At the stroke of nine
Those snoopy inspectors are out for some sport
    in their favorite line
They're looking for trouble and maybe you're it
If you're shoes and towels aren't in line
For inspectors feel hurt if they can't find
    some dirt by inspection time.

53. DOWN IN THE VALLEY

Down in the valley, the valley so low,
Hang your head over, hear the winds blow,
Writing a letter, containing three lines,
Answer my question, "Will you be mine?"
Hear the winds blow, dear, hear the winds blow
Hang your head over, hear the winds blow.
Will you be mine, dear, will you be mine?
Answer my question, "Will you be mine?"

54. MY HOME'S IN MONTANA

My home's in Montana, I wear a bandana
My spurs are of silver, my pony is gray
When riding the ranges, my luck never changes
With foot in the stirrup I gallop away.

When far from the ranches I cut the pine branch
To lay out a bed when the starlight is pale
When I have partaken of beans and of bacon
I whistle a merry old song of the trail.

Form# 113

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
FELLOWSHIP

55. UP WITH PEOPLE

Up, Up with people, you meet 'em wherever you go
Up, up with people, they're the best kind of folk
to know
If more people were for people, all people everywhere, there'd be a lot less people to worry about and a lot more people who care.

(A) It happened just this morning, I was walkin down the street. The milkman and the postman and policeman I did meet. There in every window, at every single door, I recognized people I never noticed before.

(B) People from the southland and people from the North. Like a mighty army I saw them coming forth. Twas a great reunion, befitting of a king, then I realized people were more important than things.

(C) Inside everybody there's some bad and there's some good - but don't let anybody start attacking peoplehood. Love them as they are and fight for them to be great men and great women as God meant them to be.

56. EATS (to the tune of "Smiles")

There are eats that make us happy,
There are eats that make us chew,
There are eats that take away our pleasure
Such as pork and beans and hash and stew.

There are eats that give us indigestion,
There are eats that put us all in bed
But the eats that make us all so happy
Are the eats that we've just been fed!

57. DONKEY RIDING

CHORUS:
Hey, Ho, away we go, donkey riding,
donkey riding, Hey Ho, Away we go
Riding on a donkey

(A) Were you ever in Quebec stowing timber on a deck. Where there's a king with a golden horn riding on a donkey.

(B) Were you ever in Cardiff Bay where the folks all shout hooray. Here comes Johnny with three months pay riding on a donkey.

(C) Were you ever off the horn where it's always nice and warm. Where there's a lion and a unicorn riding on a donkey.

58. TUNE IS DUMB

CHORUS:
Ho Hum, the tune is dumb, the words don't mean a thing. Isn't this a silly song for anyone to sing.

(A) I used to laugh and dance all night just to keep my feet in rythmn, but you see I washed them both last night and I can't do nothin' with 'em.

(B) I chased a skunk right up a tree, clear out upon a limb. Before he got the best of me I got the worst of him.

(C) I used to have a billy-goat I had him disinfected. He could have slept in ________ bed but the billy-goat objected.

Form # 114

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
PART SONGS AND ROUNDS

59. OL' TEXAS

I'm goin' to leave
I'm goin' to leave
Ol' Texas now
They've got no use
They've got no use
For the Longhorn cow
For the Longhorn cow

They've plowed and fenced my cattle range
And the people there are all so strange.

I'll take my horse, I'll take my rope,
And hit the trail upon a lope.

Say adios to the Alamo
And turn my head toward Mexico.

60. HOME ON THE RANGE

Oh, give me a home where the buffalo roam,
Where the deer and the antelope play
Where seldom is heard a discouraging word
And the skies are not cloudy all day.

CHORUS:
Home, home on the range
Where the deer and the antelope play
Where seldom is heard a discouraging word
And the skies are not cloudy all day.

How often at night when the heavens are bright
With the light from the glittering stars
Have I stood there amazed and asked as I gazed
If their glory exceeds that of ours. REPEAT CHORUS

Where the air is so pure and the zephyrs so free
And the breezes so balmy and bright
That I would not exchange my home on the range
For all of the cities so bright. REPEAT CHORUS

61. SHALOM CHAVERIM

Shalom Chaverim, shalom chaverim, shalom, shalom
Lebitraot, Lebitraot, shalom, shalom
Farewell good friends, farewell good friends
Farewell, Farewell
Till we meet again, till we meet again
Farewell, Farewell.

62. SIXPENCE

I've got sixpence, jolly jolly sixpence
I've got sixpence to last me all my life
I've got two pence to spend and two pence to lend
And two pence to send home to my wife, poor wife.

CHORUS:
No cares have I to grieve me, no pretty little girl to deceive me
I'm happy as a lark, believe me, as I go rolling, rolling home.
Rolling home, rolling home, by the light of the silvery moon
Happy is the day when the soldier gets his pay as I go rolling, rolling home

Verse 2: I've got fourpence. . .twopence to spend. . .twopence to lend. . .no pence to send home to my wife
Verse 3: I've got twopence. . .twopence to spend. . .no pence to lend
Verse 4: I've got no pence. . .

63. ZUM GALI

Zum Gali, Gali, Gali) Repeat
Zum Gali, Gali, Gali)
Sing as harmony with:
He chalutz le'man a vo dah
A va dah le'man he-cha-lutz

Form # 115

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
PART SONGS AND ROUNDS

64. INSTRUMENT SONG (repeat)
A. The violins ringing like lovely singing
B. The clarinet, the clarinet makes doodle,
doodle, doodle det (repeat)
C. The trumpet is braying ta, ta, ta, ta, ta,
te, ta, ta, ta, ta, ta, ta, te, ta (repeat)
D. The horn, the horn awakes me at morn
(repeat)
E. The drums playing 2 tones are always
the same tones 5, 1, 1, 5, 5, 5, 5, 1

65. WHITE CORAL BELLS
White coral bells upon a slender stalk
Lilies of the valley deck my garden walk
Oh don't you wish that you could hear them ring
That will only happen when the fairies sing.

66. MAKE NEW FRIENDS
Make new friends - but keep the old
One is silver and the other's gold.

66A. KOOKABURRA
Kookaburra sits in the old gum tree
Merry merry king of the bush is he
Laugh Kookaburra, Laugh Kookaburra
Gay your life must be.

67. ROW YOUR BOAT
Row, row, row your boat
Gently down the stream
Merrily, merrily, merrily, merrily
Life is but a dream

Hoe, hoe, hoe your row,
Thru' the summer heat
Merrily do your bit, cheerily stick to it
Raising beans and wheat

Save, save, save the wheat
Meat and sugar, too;
Corn and potatoes and rice and tomatoes
Are mighty good for you!

68. RISE UP, OH FLAME:
Rise up, oh flame
By thy light, glowing show to us beauty,
vision and joy.

69. HELLO
Hello, Hello, Hello, Hello We are glad to
meet you
We are glad to greet you, Hello, Hello,
Hello, Hello

70. MUSIC ALONE SHALL LIVE
All things shall perish from under the sky
Music alone shall live, music alone shall live
Music alone shall live never to die

71. ROSEN FRA FUHN
Rosen fra Fuhn, Rosen fra Fuhn, Rosen fra Fuhn
Rosen fra Fuhn

72. FRENCH CATHEDRAL
Orleans, Beaugency, Notre Dame de Clery,
Vendone, Vandone.

73. CANOE SONG
My paddle's keen and bright, flashing with
silver
Follow the wild goose flight; dip, dip and
swing
Dip, dip and swing her back, flashing with
silver
Swift as the wild goose flies, dip, dip and
swing.

74. WHIPPOORWILL
Gone to bed is the setting sun, night is
coming and day is done
Whippoorwill, whippoorwill has just begun

75. NOBLE DUKE OF YORK
The Noble Duke of York, he had ten thousand
men. He marched them up the hill & marched
them down again.
And when you're up, you're up. And when
you're down, you're down.
And when you're only halfway up, you're
neither up nor down.

76. FIRE IS BURNING
Fire is burning, fire is burning. Draw
nearer, draw nearer.
In the glowing, in the glowing come sing and
be merry.

Form # 116

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
PART SONGS AND ROUNDS

77. MACKEREL

Mackerel, Fresh mackerel. Chairs to mend,
old chairs to mend
Any old rags, any old rags

78. TELL ME WHY

Tell me why the stars do shine, tell me why
the ivy twines
Tell me why the sky's so blue, and I will
tell you just why I love you.

Because God made the stars to shine,
because God made the ivy twine
Because God made the sky so blue, because
God made you, that's why I love you

I do believe that God above, created you for
me to love. He picked you out from all the
rest
Because God made you, I love you the best.

Form # 117

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
GRACES

79. ROUND OF THANKS

For health and strength and daily food
We praise thy name, O Lord

80. PRAISE FOR BREAD

Morning has come, the board is spread
Thanks be to Him who giveth bread
Praise God for bread

Noontime has come, the board is spread
Thanks be to Him who giveth bread
Praise God for bread

Evening has come, the board is spread
Thanks be to Him who giveth bread
Praise God for bread.

81. CHIMES GRACE

Hark to the chimes,
Come bow thy head
God we thank thee
For this good bread

82. BLESS THIS CAMP

Bless this camp, oh Lord, we pray
Keep it safe by night and day.
Bless the mountains round about
Keeping want and trouble out.
Bless the lake and trees so tall
Let Thy light shine over all.
Bless this camp that it may prove
Ever open to joy and love.

83. FOR HEALTH AND STRENGTH

For health and strength and daily food,

We praise Thy name, O Lord.

84. WESTMINSTER CHIMES

Morning has come, the board is spread

Thanks be to Him who giveth bread.

Form # 118

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
ACTION SONGS

85. THE BIRDIE SONG

1. Way up in the sky the little birds fly,
While down in their nest the little birds rest.

With a wing on the left and a wing on the right
The little birds sleep all through the night
(Shh---they're sleeping)

2. The bright sun comes up, the dew falls away,
"Good morning, good morning," the little birds say.

ACTIONS

Way up in the sky -- both hands sweep upward
The little birds fly --imitate flying with hands elevated at side
While down in their nest -- hands point downward
The little birds rest -- head rests against palms of hands
With a wing on the left -- fold left arm under armpit and flap
And a wing on the right -- fold right arm under armpit and flap
The little birds sleep all through the night -- head rests against palms
Shh... -- index finger to lips
The bright sun comes up -- sweep hands upward repeatedly
The dew falls away -- turn hands downward and lower while moving them as if shaking off water drops
Good morning... -- use deep gruff voice

86. THE CROCODILE SONG

Oh she sailed away on a sunny summer day
On the back of a crocodile,
"You see," said she,
"He's as tame as he can be.
"I'll float him down the Nile."
The croc winked his eye
As she bade them all goodbye,
Wearing a happy smile.
At the end of the ride
The lady was inside
And the smile was on the crocodile.

ACTIONS

Oh she sailed away... -- flutter hands like ocean waves
On the back... -- with palms of hands together, clap hands like croc mouth
...
He's as tame... -- pat one hand with the other, as petting a dog
I'll float him... -- flutter again like ocean waves
The croc winked... -- point to winking eye and wave farewell
Wearing a happy smile -- outline smile on own mouth
...
The lady was inside -- pat stomach
And the smile... -- clap hands like croc mouth

87. THE DESPERADO

1. There was a desperado from the wild and woolly West.
He rode into Chicago just to give the West a rest.
He wore a big sombrero and two pistols at his side,
And everywhere he went he gave his war whoop.

CHORUS:
But what a big, bold man was this desperado,
From Cripple Creek way out in Colorado.
And he horsed around like a big tornado,
And everywhere he went he gave his war whoop.

2. He went to Coney Island just to take in all the sites.
He saw the hootchy, kootchy girls and girls all dressed in tights.
It got him so excited that he shot out all the lights,
And everywhere he went he gave his war whoop. CHORUS

3. One day a fat policeman came a-walking down the street,
He saw the desperado just a-strolling down the street.
He took him by the collar and he took him by the seat
And threw him where he couldn't give his war whoop. CHORUS

ACTIONS

1. ...no action...
hands in front of body, imitate riding a horse, then rest head in hands as if they were a pillow
circle hands around head in opposite directions from front to back, then slap each hip in turn to the music
pat mouth with hand to get a "whoop" effect

CHORUS:
extend chest and put thumbs in make-believe suspenders
one hand on hip, other hand on slightly bent knee; then the hand on knee jerks over the shoulder in hitchhike manner
imitate riding a horse, then circle arm overhead
"whoop" effect

2. make binoculars with fingers over eyes and look all around
swivel hips as much as capable (!), then outline a girl in front of body
in time to music, extend hands overhead and shoot two guns (index fingers)
"whoop" effect

3. stomp forward and back to place
casually stride forward and back to place
extend one hand in front of body as if to grab a collar, and use other hand as if to grab a "seat"
extend and sweep both hands forward quickly, then "whoop" effect

Form # 120

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
ACTION SONGS

88. DOODLE - EE - DOO

Please play for me that sweet melody
Called the doodle-ee-doo, the doodle-ee-doo.
I like the rest but the part I like best
Is the doodle-ee-doo, the doodle-ee-doo.
Simplest thing, there isn't much to it.
You don't have to sing, just doodle-ee-doo it.
I like it so, wherever I go
I just doodle-ee-doodle-ee-doo.

(Come on and . . .)

Waddle--ee-ah-chee, waddle--ee--ah--chee,
Waddle--ee--oh, waddle--ee--oh.
Waddle--ee--ah--chee, waddle--ee--ah--cheee,
Waddle--ee--oh, waddle--ee--oh.
Simplest thing, there isn't much to it.
You don't have to sing, just doodle-ee-doo it.
I like it so, wherever I go
I just doodle-ee-doodle-ee-doo.

(Both verses are repeated in sequence as many times as desired. Each repetition is faster, thus complicating the actions.)

ACTIONS

BEGIN EACH NEW ACTION ON THE FIRST AND THIRD BEAT OF THE MEASURE. THE ENTIRE SEQUENCE OF ACTIONS IS REPEATED EVERY FOUR MEASURES; THE SEQUENCE IS REPEATED FOUR TIMES DURING EACH VERSE.

Slap thighs twice
Clap hands twice
Pass right hand over left hand twice
Pass left hand over right hand twice
Right hand touches nose, then left shoulder; left hand to nose and shoulder
Left hand touches nose, then right shoulder; right hand to nose and shoulder
Repeat entire sequence three more times to complete verse.

89. IF ALL THE RAINDROPS

If all the raindrops were lemon drops and gum drops,
Oh what a world this would be.

If all the raindrops were lemon drops and gum drops,
Oh what a world this would be.

I'd stand outside with my mouth open wide,
Ah ah ah ah ah ah ah ah ah ah.

If all the raindrops were lemon drops and gum drops,
Oh what a world this would be.

Verse 2

If all the snowflakes were hershey bars and milkshakes. . .

ACTIONS

When the "ahs" are sung, tilt face toward the sky and open mouth wide, as if to let all the "goodies" drop in.

90. THE MERMAID SONG

Twas Friday morn when we set sail
And we were not far from the land.
When the captain spied a lovely mermaid
With a comb and glass in her hand.

CHORUS:
Oh, the ocean waves may roll
And the stormy winds may blow
But we poor sailors go skipping to the top
And the landlubbers like down below, below, below,
And the landlubbers lie down below.

Then up spoke the captain of our gallant, gallant ship
And a well-spoken man was he.
"I married me a wife in Salem-town,
But tonight a widow she'll be." CHORUS

Then up spoke the cook of our gallant, gallant ship,
And a red-hot cook was he.
"I care much more for my pots and my pans
Than I do for the depths of the sea." CHORUS

Then three times 'round went our gallant, gallant ship
And three times round went she.
Then three times round went our gallant, gallant ship
And sank to the bottom of the sea. CHORUS

Form # 122

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
ACTION SONGS

91. LITTLE PILE OF TIN

Got a little pile of tin,
Nobody knows what shape it's in.
Got four wheels and a running board
It's a four-door, it's a Ford.
Honk, honk, rattle, rattle, rattle
Crash, beep, beep.
Honk, honk, rattle, rattle, rattle,
Crash, beep, beep.
Honk, honk, rattle, rattle, rattle,
Crash, beep, beep, honk, honk.

ACTIONS:
With both hands draw a square.
Shake head back and forth in time to music
With one hand, show four fingers in front of body; then sweep arm from right to left
With one hand, show four fingers again
On each "honk" pat nose with one hand
On each "rattle" shake hips back and forth
On each "crash" pat mouth
On each "beep" pat forehead with one hand

92. LOVE GROWS UNDER A WIDE OAK TREE

Love grows under a wide oak tree,
Sugar flows like candy.
Top of the mountains shine like gold
When you kiss your little fella sorta handy.
Dreams, dreams, sweet dreams,
Under the wide oak tree.
Dreams, dreams, sweet dreams,
One for you and one for me.

(Repeat the entire song and actions, each time faster.)

ACTIONS:
(The entire sequence of motions is repeated four times during each complete singing of the verse. Continue the motions for each beat of every measure throughout the song.)

Slap knees -- repeat -- clap hands -- repeat
Snap fingers right hand -- clap hands -- snap fingers left hand -- clap hands
Right hand over left hand, beat sideways -- repeat -- left hand over right hand, beat sideways -- repeat
Snap fingers of both hands to right -- repeat -- snap fingers of both hands to left -- repeat

93. IN A COTTAGE IN A WOOD

1. In a cottage in a wood,
2. Little man at the window stood
3. Saw a rabbit hopping by
4. Knocking at the door.
5. "Help me, help me, help me," he cried
6. "Or the hunter will shoot me dead."
7. "Little rabbit, come inside,
8. Safely to abide."

ACTIONS:

1. With both hands and arms draw a square
2. Make binoculars with fingers at eyes and look from side to side
3. Hold hands in front of body and bounce them up and down like hopping motion
4. Knock on imaginary door with one fist
5. (spoken not sung) throw hands over head on each "help"
6. (singing again) point right arm like rifle, support with left hand, and move from side to side as if aiming
7. Beckoning motion with one arm
8. Hold bunny with right arm and pet him with left hand

Form # 124

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
ACTION SONGS

94. THE POLAR BEAR HUNT

Ah ta ka ta nu va, ah ta ka ta nu va,

Ay mis a day mis a do a mis a day.

Ah ta ka ta nu va, ah ta ka ta nu va,

Ay mis a day mis a do a mis a day.

VERSE:
Hex a col a mis a wa ta, hex a col a mis a wa ta.

ACTIONS:

Chorus: clasp both elbows and rock arms back and forth in rhythm to suggest paddling a kyack. Sing chorus after each verse.

Verse 1: rub finger back and forth across nose as if saying goodbye as the Eskimos do by rubbing noses.

Verse 2: Shading eyes with right hand, palm up with elbow crossed over to left side, scan horizon for a polar bear. Repeat with left hand.

Verse 3: Aim bow at moving bear during first two measures, release string on "ta" and then clap hands saying "bang". Repeat, reversing hands. Sing next chorus quickly as you paddle over to the bear.

Verse 4: Reach down and pull heavy bear into kyack during first two measures, then grunt. Repeat. Sing next chorus slowly; the kyack is so heavy.

Verse 5: Holding arm high and moving hand from wrist, wave to folks on shore, then point down to your bear, shouting "see?" Repeat with other hand. Sing next chorus with increasing speed as you near the shore.

Verse 6: Greet relations and friends on shore as in Verse 1.

95. SING LIKE THE GOLDFISH

Let's all sing like the goldfish sing,
Mwa, mwa, mwa, mwa, mwa.
Let's all sing like the goldfish sing,
Mwa, mwa, mwa, mwa, mwa.
Let's all sing like the goldfish sing
And make the seaweed ring!
If there's one thing I wish,
It's to sing like a fish.
Mwa, mwa, mwa, mwa, mwa.

ACTIONS:
On each "mwa", pucker lips and cross the eyes while singing, to give the appearance of imitating a fish. "Mwa" is the phonetic spelling for about the only sound the mouth can make when contorted in such a manner!

Form # 125

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
ACTION SONGS

96. SIX LITTLE DUCKS

Six little ducks that I once knew,
Fat ones, skinny ones, fair ones too

CHORUS:
But the one little duck with a feather on his back,
He led the others with his quack, quack, quack.
Quack, quack, quack, quack, quack, quack.
He led the others with his quack, quack, quack.

Down to the river they would go,
Wibble, wabble, wibble, wabble to and fro. . .CHORUS

Home from the river they would come
Wibble, wabble, wibble, wabble, ho-hum-hum. . .CHORUS

97. SONS OF THE SEAS

Sons of the seas, bobbin' up and down like this.
Sailing the ocean, bobbin' up and down like this.
You can sail a ship my lads, bobbin' up and down like this.
But you can't beat the boys in the bulldog brig,
Bobbin' up and down like this.

*Verse 2: ...pullin' up your pants,
bobbin' up and down like this...

Verse 3: ... swabbing the deck,
pullin' up your pants,
bobbin' up and down like this...

Verse 4: ... hoisting the flag,
swabbing the deck,
pullin' up your pants,
bobbin' up and down like this...

Verse 5: ...climbing up the ladder,
hoisting the flag,
swabbing the deck,
pullin' up your pants,
bobbin' up and down like this...

*the verses come in add-on fashion. A new phrase is first sung, then all the others are repeated that came before it. Musical timing is temporarily suspended while all the action lines are sung to the same six notes.

ACTIONS:
The actions to "climbing", "hoisting", "swabbing", and "pullin'" seem obvious. On "bobbin'", the body goes straight down, bending only at the knees, with knees and feet pointing sideward, one arm crossed in front of waist, and the other arm crossed behind the waist.

daily schedules

hour by hour, monday thru thursday (and dont forget friday)

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 127

SCHEDULE

		CABIN ASSIGNMENTS			
		Monday	Tuesday	Wednesday	Thursday
7:00 A.M.	Reveille. Don clean clothes after freshening face, combing hair, and make beds, etc.				
7:35	Bell rung - Assemble on numbers	9	12	1, 8, 15	4
7:40	Weather Cabin checks instruments and sky to report after breakfast	5	8	11	14 & 16
	Flag detail ceremony leaders	3 & 4	7 & 10	12 & 13	11
	Hoppers remain with washed hands. Return for breakfast, keeping in groups.				
8:00	Teachers and counselors turn in evaluations to Principal.				
	Cafeteria doors open when food is served				
	Sing Grace, led by Cabin	13	1 & 16	5	8
	Reports: Weather Secretary				
	Announcements				
	Cabin leads song of choice	13	1 & 16	5	8
8:45	Bell ringers leave to feed stock	9	12	1 & 15	4
8:45-9:05	Clean up cabin for inspection. Prepare for morning activities. BRING PENCILS				
9:05-10:55	Scheduled activities Wear socks - bring pencils				
10:55-11:45	Special activites as announced at breakfast				
11:45	Designated groups report:				
	Hoppers report with washed hands				
	Weather observation cabin	6	9	12	1
	Bell rung -- cabin	10	13	2 & 16	5
12:00	Cafeteria doors open when food is served				
	Sing Grace, led by Cabin	14	3	6	9
	Lunch				

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 128

SCHEDULE continued

		CABIN ASSIGNMENTS			
		Monday	Tuesday	Wednesday	Thursday
	Reports:				
	Weather -- Cabin	6	9	12	1
	Secretary				
	Nurse				
	Announcements				
	Songs - Cabin leads song of choice	14	3	6	9
	Bell ringers leave to feed stock-cabin	10	13	2 & 16	5
	Library opens				
12:45-1:45	Rest Hour Each camper in his or her own bunk to rest, sleep, write home, read and/or prepare special assignment				
	Counselors and teachers stay with their cabin!				
	Principal and/or Director visit cabins				
1:50-3:50	Scheduled activities Wear socks -- bring pencils				
4:00-5:15	Classroom teachers meet with Camp Director Activity led by P.E. Instructor and counselors				
5:15	Designated groups report:				
	Hoppers report with washed hands				
	Weather observation -- Cabin	7	10	13 & 15	3
	Bell rung -- Cabin	11	14	3	6
5:30	Cafeteria doors open when food is served				
	Sing Grace -- led by Cabin	15 & 2	4	7	10
	Supper				
	Reports:				
	Weather -- Cabin	7	10	13 & 15	3
	Secretary				
	Announcements				
	Cabin leads song of choice	15 & 2	4	7	10
6:05	Flag detail leaves for flagpole-Cabin	5 & 6	8 & 9	16 & 14	2 & 15
	Bell ringers leave to feed stock--Cabin	11	14	3	6
	Flag lowering				

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form# 129

SCHEDULE continued

CABIN ASSIGNMENTS

Monday Tuesday Wednesday Thursday

6:15 Counselors meet with Director

6:15-7:00 Teachers and their classrooms meet

T 1 at Red Cedar
T 2 at Art Pavilion
T 3 at Recreation Room
T 4 at Dining Room

7:00-8:30 Evening Program

8:30-8:45 Snacks

8:45-9:30 Prepare for bed
One camper in the bathroom at a time!

9:30 Taps -- Lights out
Counselors and teachers stay with campers
until 15 minutes after lights are out.
Those scheduled tobe free of duties 15 minutes after lights are out
may come to the recreation room, staying
no longer than 11:00 p.m.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 130

TO DEVELOP A SKIT

You will be judged on the following:

Introduction of title (good name - loud, clear)

Introduction of players and characters portrayed

Well developed skits (builds to a climax)

Ending

Delivery (loud, clear, expressive)

Smooth performance (no giggling, hesitation or forgetfulness)

Involves memory work

"Original" theme

Concerning nature or Outdoor Education

Involves audience participation

Props and costumes, made at camp?

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
FRIDAY SCHEDULE

Form # 131

7:00 Reveille via tape
Don clean clothes, after freshening face, combing hair, and make beds, etc.

7:25 Library opens, turn in all your books - animal reports and art packets

7:35 Bell rung - Cabin 7 -- All cabins assemble on numbers
Weather observation--Cabin 2
Flag ceremony--Cabins 1 and 3
Hoppers remain with wahed hands

8:00 Teachers and counselors turn in evaluation of Thursday's activities

Cafeteria doors open when food is served

Sing Grace, led by Cabin 11

Breakfast

Reports:
  Weather Cabin 2
  Secretary
Announcements

Bell ringers Cabin 7 leave to feed stock

Cabin 11 leads song of choice

8:45-9:05 Clean cabins for inspection. Empty wastebaskets, etc. Move all baggage outside cabin.

9:10-10:15 Special activities - Camp recap

10:15 Move baggage to designated area
Load buses
Return to check cabins for overlooked items and last minute clean up

10:45 Hoppers report with washed hands

Weather observation - Cabin 4
Bell rung - Cabin 8

11:00 Cafeteria doors open when food is served

Sing grace led by Cabin 12

Lunch

Reports:
  Weather observation - Cabin 4
  Secretary
Announcements
Cabin 12 leads song of choice
Fold and move chairs to wall

11:45 Leave camp
Teachers turn in evaluation
Principal or nurse in charge inspects each cabin with representative of camp staff to assure all students' areas are clean and nothing left behind.

THERE WAS A CHILD WENT FORTH

There was a child went forth every day;
And the first object he looked upon, that object he became;
And that object became part of him for the day, or a certain part of the day, or for many years, or stretching cycles of years.

The early lilacs became part of this child,
And the grass, and white and red morning glories, and white and red clover, and the song of the phoebe bird,
And the Third-month lambs, and the sow's pink-faint litter, and the mare's foal, and the cow's calf,
And the noisy brood of the barnyard, or by the mire of the pondside,
And the fish suspending themselves so curiously below there—and the beautiful curious liquid,
And the water plants with their graceful flat heads—all became part of him.

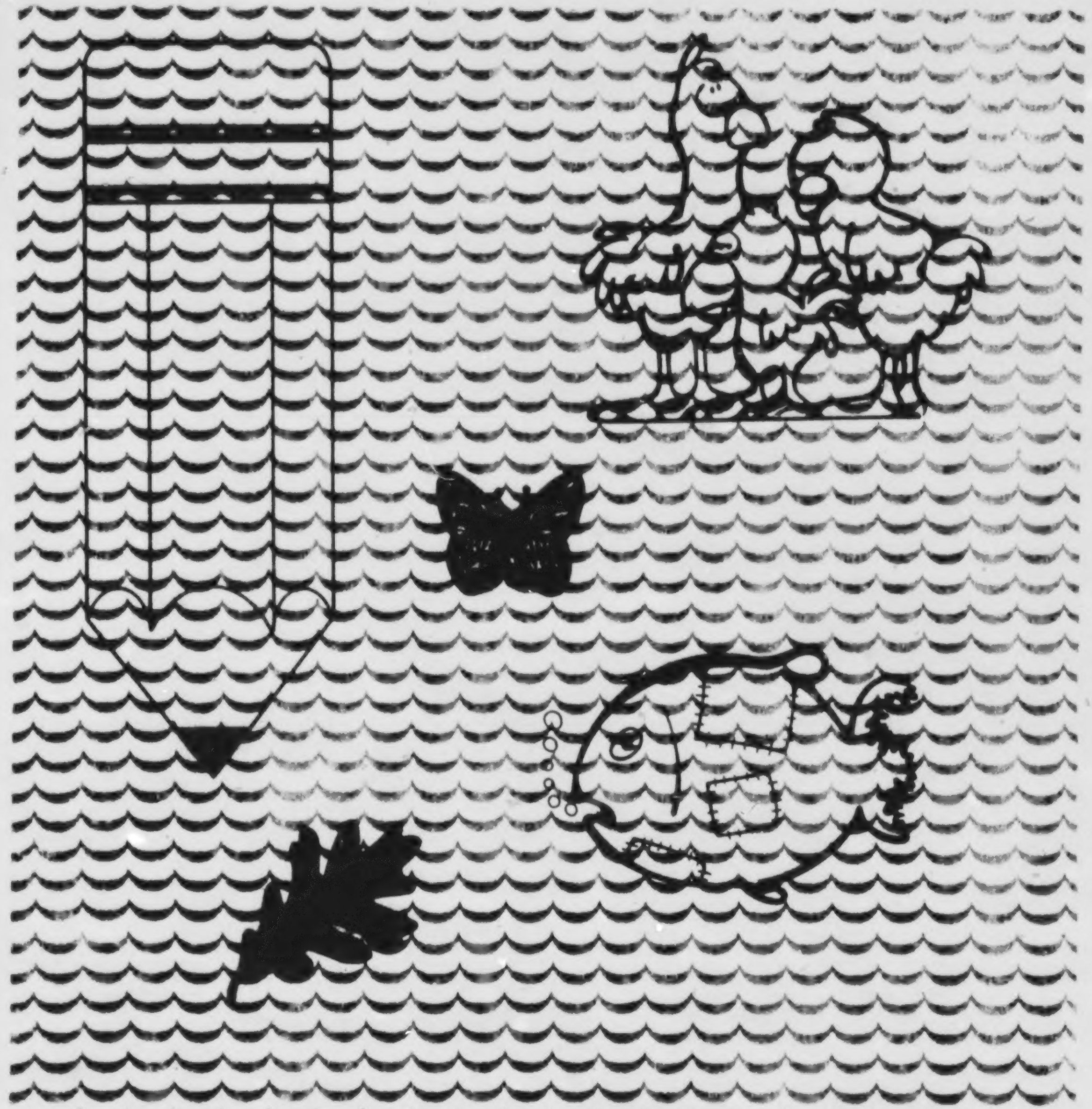
The field sprouts of Fourth-month and Fifth-month became part of him;
Winter grain sprouts, and those of the light yellow corn, and the esculent roots of the garden,
And the apple trees covered with blossoms, and the fruit afterward, and wood berries, and the commonest weeds by the road. . . .

The doubts of day-time and the doubts of night-time—the curious whether and how,
Whether that which appears so is so, or is it all flashes and specks? . . .

The hurrying tumbling waves, quick-broken crests, slapping,
The strata of color'd clouds, the long bar of maroon tint, away solitary by itself—the spread of purity it lies motionless in,
The horizon's edge, the flying sea crow, the fragrance of salt marsh and shore mud;
These became part of that child who went forth every day, and who now goes, and will always go forth every day.

—*Walt Whitman*

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 133



curriculum guide

(or how to tell a fish from a tree stump)

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 134

SUGGESTED PRE-CAMP CURRICULUM

1. Writing letters, addressing envelopes, zip codes.

2. Animals of the world:
    - a. Pets
    - b. Domesticated
    - c. Wild
    - d. Found in Missouri's Woods
    - e. Found in Missouri's Fields
    - f. At school
    - g. Identification
    - h. Habitat

3. Insects:
    - Home
    - Woods
    - School
    - On Animals
    - In Water
    - In Air
        - A. Microscopic
            - a. Use of Magnifying glass
            - b. Use of microscopes
        - B. Tiny Bugs

4. Fish; size and identification
    - a. Home
    - b. School
    - c. Game Fish
    - d. Rough
    - e. Fish of Missouri

5. Sanitation; of the city, county, home
    - a. Metropolitan Sewer District
    - b. Septic Tanks
    - c. Lagoons

6. Appreciation of natural beauty:
    - a. Trees
    - b. Flowers
    - c. Sun
    - d. Sky
    - e. Stars
    - f. Water
    - g. Land

7. Library usage:
    - a. For reading pleasure
    - b. For facts
    - c. For identification

8. How to make a collection:
    a. Shells
    b. Rocks
    c. Leaves
    d. Insects

9. How to mount, display and store collections.

10. Farming:
    a. Types of plants
        ground
        equipment
        acreage
        water level
        water drainage
        erosion

11. Prevention of erosion:
    a. At home
    b. At school
    c. "Grandma's"

12. Music types:
    a. Patriotic
    b. Fun
    c. Campfire
    d. Marching
    e. Church

13. Identification of:
    a. Rocks
    b. Minerals

14. Compass usage:
    a. Direction of the school
        home
        Grandma's
        Aunt
        Church
        Fire Station

15. Map reading:
    a. Locate state
    b. Locate City
    c. Their home
    d. Grandma's

16. Map types:
    a. Political
    b. Resource
    c. Topographic
    d. Highway

17. Map scales and symbols

18. Types of government:
    - Federal
    - State
    - County
    - Local
        - a. Duties
        - b. Location of seats of government

19. Saving for a purpose:
    - a. Set aside part of allowance to defray camp costs
    - b. Open bank at school

20. The respect for our flag:
    - Proper display
    - How to fold
    - History of

21. Identification of:
    - a. Plants
    - b. Flowers
        - Select
        - Order
        - Plant Seeds
        - Transplanting either at school or camp

22. Review the types of highways:
    - a. Federal
    - b. State
    - c. County
    - d. Identifying signs for each

23. Estimate:
    - a. Heights
    - b. Weights
    - c. Distance
    - d. Age
        - a. Factors that may alter estimates

24. Units of measurements:
    - a. Inch
    - b. Foot
    - c. Mile
    - d. Self
    - e. Room
    - f. Book
    - g. Paper
        - a. Estimate then take measurements of self
          room
          book
          bike
        - b. Formula:
            - Area
            - Volume
            - Perimeter

25. Study of a tree:
    - a. Difference between a tree and other plants
    - b. Main classifications
        - 1. Conifer
        - 2. Broadleaf
    - c. Shape of leaf
    - d. Growth requirement
    - e. Parts of the tree:
        - 1. Buds
        - 2. Flowers
        - 3. Cones
        - 4. Roots
        - 5. Bark
    - f. How to differentiate between one tree and another
    - g. Identify trees at school
    - h. Identify trees at home
    - i. Tree products

26. Sketching: Drawing: Construction:
    - a. Of trees
    - b. Of scenes

27. Weather:

    - a. Forecasting
    - b. Recording

28. Spin Casting:
    - a. Practice casting
        - School
        - Home
    - b. Artificial Lures
    - Live baits
    - Line

29. Awareness of articles in newspapers and periodicals on Conservation of resources.

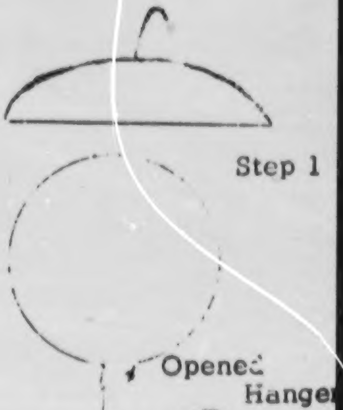
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

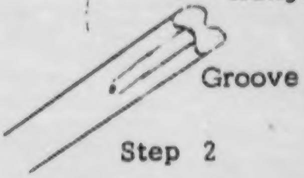
FORM # 138

HOW TO MAKE A SIMPLE INSECT NET

MATERIALS NEEDED

1. Wire Coat hanger
2. A 2' to 4' broom or mop handle, or a 3/4" dowel rod, 36" long.
3. 10' to 15' of light wire - iron or copper
4. Roll of tape - rubber or friction.
5. 36" x 24" piece of mosquito netting or marquisette.
6. One 4" strip of muslin or other heavy cloth 36" long.



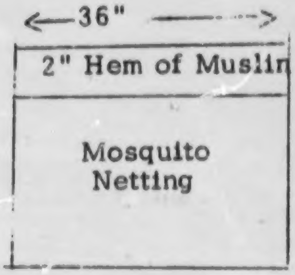


STEP 1

Shape a wire coat hanger into a neat circle. This circle will be about 11" in diameter and 35" in circumference. Straighten the curved end of coat hanger. Open the twisted ends of the hanger wire with pliers.

STEP 2

The broom or mop handle or dowel rod will be the handle for the net. Cut grooves in one end, into which the ends of the coat hanger wires will fit neatly on each side. Make holes in the grooves so the bent ends will fit to prevent handle from turning and to anchor it more firmly.



Step 3

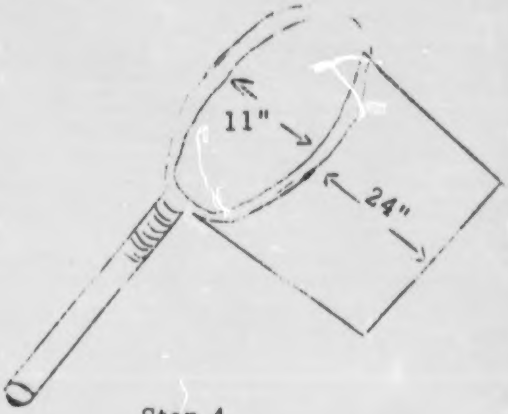
STEP 3

Fold a 4 inch width of muslin or other heavy cloth to make hem around top of net. Sew the netting to this hem. Sew edges of netting together to make a bag, which should be about 18" x 24".

STEP 4

Work one end of the wire circle through the hem in top of the bag. Place the two ends of the coat hanger in the grooves and holes on end of handle and wrap firmly with the light wire. Cover this wrapping with tape or leave as is, if it seems to be strong enough.

NOTE: If larger net is wanted, use heavy wire which can be purchased at any hardware store.



Step 4

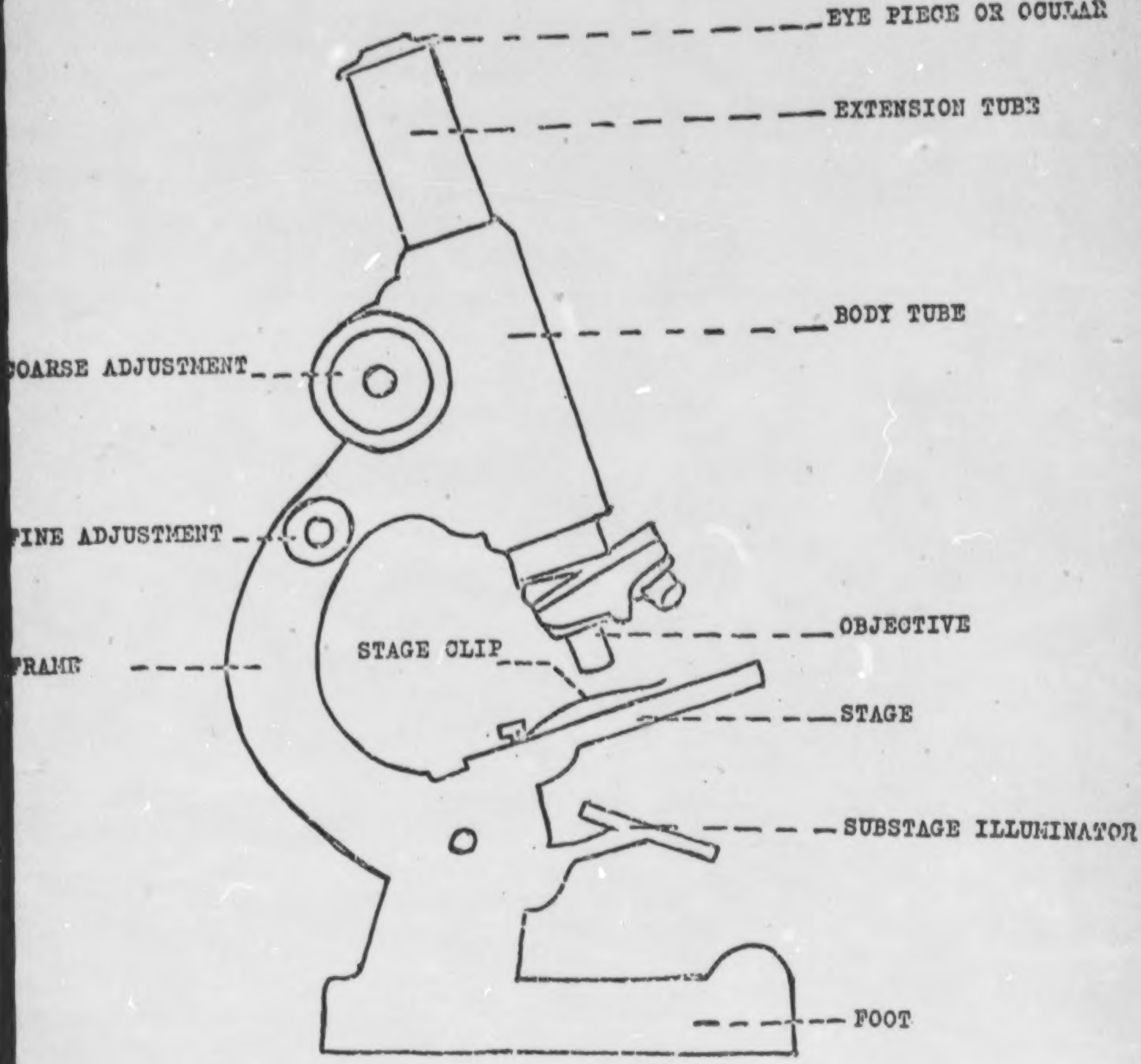
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 139

USE OF THE MICROSCOPE

1. Make sure hands are clean.
2. Remove eyeglasses.
3. Never touch the glass surface of the microscope.
4. Turn lowest power objective in the optical axis.
5. Turn on substage illuminator.
6. Place the slide under the stage clips. Center it as closely as possible without looking in the eyepiece.
7. Without looking in the eyepiece bring the stage and objective as close together as possible by using the coarse adjustment.
8. Look in eyepiece and carefully and slowly turn the coarse adjustment in the opposite direction.
9. Using fine adjustment, bring the specimen on the slide into clear view.
10. To use other objectives, carefully rotate nosepiece to next objective. Specimen will remain in focus or almost so.
11. To remove slide, turn coarse focus until stage and objective lens are as far apart as possible without forcing.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 140

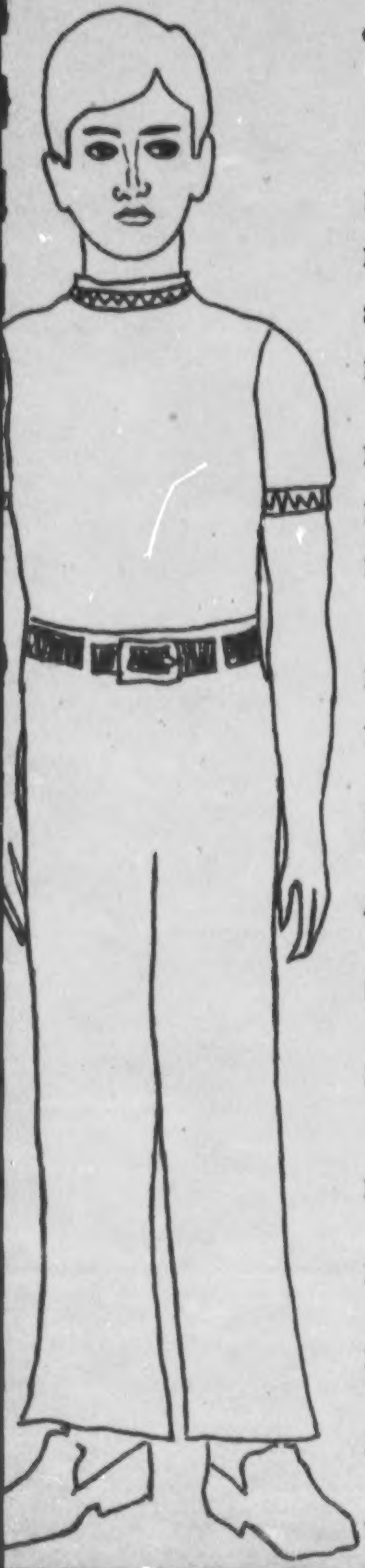

EYE PIECE OR OCULAR
EXTENSION TUBE
BODY TUBE
COARSE ADJUSTMENT
FINE ADJUSTMENT
OBJECTIVE
STAGE CLIP
FRAME
STAGE
SUBSTAGE ILLUMINATOR
FOOT

Form #141

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

PERSONAL MEASUREMENTS

of______________________________on____________________, 197___



My height__________inches

Eye height__________inches

Shoulder height__________inches

Elbow height, arm at my side __________inches

Distance from elbow to tip of middle finger right hand _____inches

Distance from wrist crease to tip of middle finger _________inches

Distance between extended thumb and tip of forefinger (trigger) _________inches

Length of my right shoe__________inches

Length of my stride__________inches

Fistmele (measure clenched fist with thumb raised)________inches

Arm extended in front -- distance from armpit to tip of middle finger ________inches

Both arms extended from sides -- distance between left hand middle finger and right hand middle finger_______inches

Hands up over head -- distance from ground to tip of middle finger ________inches

Distance from ______________to____________is exactly one inch.*

Distance from ______________to____________is exactly one foot.

Distance from ______________to____________is exactly one yard.

School________________________Room ______________________

* Example: end of thumb to first joint. Must be determined for individual.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 142

LET'S PRETEND

You are a ______________________________

To assist you in developing your written autobiography here are some guiding questions:

1. Name or names: Common; Scientific
2. Native habitat: in world; in United States
3. Local environmental habitat: soil, topography, climate, landscape placement
4. Seasonal distinctive characteristics for identification:
    - A. Leaf: arrangement, simple or compound, veination, edge, texture, color
    - B. Flower: type, shape, color, arrangement of parts, size
    - C. Fruit: dry, fleshy, shape, smell, taste
    - D. Bud: size, shape, scales, position
    - E. Twig: leaf scars, shape, pattern, pith, taste, smell
    - F. Bark: color, pattern
    - G. Wood: grain
5. At maturity: any changes; height; diameter; silhouette; maximum age; host to?
6. Current uses of tree or products
7. Historical uses of tree or products
8. Potential diseases: prevention; cure
9. Quote any legend, poem, historical event or honors
10. Leaf sample or drawing of leaf.
11. Picture of tree
12. Bibliography

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM#143

List With Let's Pretend, Form#142

Ash ______________________

Black Haw ______________________

Cedar - Eastern red ______________________

Cherry - Black ______________________

Dogwood - Flowering ______________________

Elderberry ______________________

Elm - Slippery ______________________

Hackberry ______________________

Hickory - Mocker Nut ______________________

Holly - Deciduous ______________________

Maple - Sugar ______________________

Mulberry ______________________

Oak - Blackjack ______________________

Oak - Northern Red ______________________

Oak - Post ______________________

Oak - White ______________________

Persimmon ______________________

Serviceberry ______________________

Sassafras ______________________

Sumac - Fragrant ______________________

Sycamore ______________________

Willow - Black ______________________

Blackberry ______________________

British Soldier Lichen ______________________

Grape - Wild ______________________

Jewel Weed ______________________

Mayapple ______________________

Pincushion Moss ______________________

Poison Ivy ______________________

Puff Balls ______________________

Reindeer Lichen ______________________

Strawberry ______________________

Thistle ______________________

Teacher's Introduction for Let's Pretend, Form 142

In order that each student may experience a greater sense of satisfaction and achievement on the Tree Identification Trail by making a significant contribution to the group, the "Let's Pretend" Form 142 is a suggested pre-camp assignment.

Each student may be assigned, draw, or select one of the trees or plants on Form 142. The lines are for your convenience to record student's assignment.

Correct research procedures and informational guide lines, prior to encampment, should enable the student to identify his tree and others of his friends.

Once at Camp Mo-Val, when on the Tree Identification Trail, each camper may identify his tree and should be able to give its distinctive characteristics, perhaps quote a legend, etc. Other students will be able to note similarities as well as differences, from their own tree, while the teacher and counselor are ready to supplement if necessary from the fact sheet!

Question #9 affords a wonderful opportunity to gain additional information so very useful as a learning device. Therefore, compare and compile the best answers with your fellow teachers and forward to the Camp Director, with correct bibliographies, for computation and reproduction for all fifth grade teachers.

Some books and verticle file material available in your school library are listed on Form 145.

Form# 145

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Source Material for Let's Pretend, (Form 142)

REFERENCE	01 C	02 Cr	03 D	04 F	06 K	07 L	08 R	09 S	10 W
031 Britannica, Jr. (listed under Encyclopedia Britanica)			x					x	
031 Child Craft Encyclopedia		x	x		x	x		x	x
031 Compton's	x	x			x				
031 Golden Book Encyclopedia (Author: PARKER, Bertha)	x	x	x	x	x	x		x	x
031 Lincoln Library of Essential Information	x	x	x	x	x	x		x	x
031 Merit Student's Encyclopedia			x						
031 New Book of Knowledge	x	x	x		x	x		x	x
031 Our Wonderful World Encyclopedia (Author: ZIM, H.)	x	x	x	x		x			x
031 World Book Encyclopedia	x	x	x	x	x		x		x
423 American Heritage Dictionary of English Language	x	x	x	x	x	x	x	x	x
423 Dictionary of Basic Words (Author: PERRY, Day)	x	x	x	x	x	x	x	x	x
500 The Book of Popular Science (Aut: POPULAR SCIENCE)			x	x	x	x	x		
500 True Science Library (Author: FRISKEY, Margaret)	x	x			x				
503 Library of Science	x	x							x
505 Young People's Science Dictionary		x		x					
574 Audubon Nature Encyclopedia (Aut: NAT. AUD. SOC.)	x	x	x	x	x	x	x	x	x
574 Golden Treasury of Natural History (Aut. PARKER, B.)	x	x	x	x	x	x	x		x
582 Missouri Trees (Aut: WYLIE, J. E. & GASS)			x	x	x	x	x	x	
634 Life of the Forest (Author: McCORMICK, Jack)	x	x	x	x	x			x	
821 The Golden Book of Poetry (Aut: WERNER, Jane)	x				x			x	x
582 Trees (Author: WATTS, May)		x			x			x	
503 Young People's Science Encyclopedia (Author: NAT. COLLEGE OF EDUC. 20 Vol.)	x		x		x				
Missouri Wildflowers (Author: DENISON, Edgar)			x		x			x	

BOOKS	01 C	02 Cr	03 D	04 F	06 K	07 L	08 R	09 S	10 W
389 BENDICK - How Much and How Many			x		x			x	
394 McGINLEY - Wreath of Christmas	x	x	x		x	x		x	x
398 PYLE - Some Merry Adventures of Robin Hood of Great Reknown	x	x	x		x	x		x	x
398 AESOP - Aesop for Children (Illus. by Winter)	x	x		x		x	x	x	
398.2 AESOP - Fables from Aseop (2 stories)			x		x		x	x	
398.2 DENT - Fables - Aesop and Others				x					
398.22 HULPACH - American Indian Tales & Legends (1 story)			x						
574 BARR - Young Scientist Takes a Walk						x		x	
574 BUCK - In Yards and Gardens	x	x	x	x	x	x	x	x	
574 WEBBER - Anywhere in the World	x	x	x	x	x	x	x	x	x
574.5 COLLINS - Community of Living Things in Forest and Woodland			x		x		x	x	
574.9 KANE - Tale of a Wood				x					
574.9 McCORMICK - Life of the Forest	x	x	x	x	x			x	
581 BANCROFT - Down Come the Leaves	x	x	x		x			x	
581 WEBBER - Bits that Grow Big		x	x	x	x	x	x	x	x

Form# 146

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Source Material for Let's Pretend, (Form 142)

BOOKS con't.	01 C	02 Cr	03 D	04 F	06 K	07 L	08 R	09 S	10 W	
581 WEBBER - Up Above and Down Below	x	x	x			x	x	x	x	
581 WENT - Plant Life Nature Library	x				x			x		
582 BULLA - A Tree is a Plant	x	x	x		x	x		x	x	
582 CARTER - Trees And How They Grow		x								
582 COE - How and Why Wonder Book of Trees		x	x	x	x			x		
582 CORMACK - First Book of Trees	x	x				x		x	x	
582 DARBY - What is a Tree	x	x	x	x	x	x	x	x	x	
582 FENTON - Trees and Their World					x					
582 JORDAN - Seeds by Wind and Water	x		x		x					
582 JORDAN - How a Seed Grows	x	x	x	x	x	x	x		x	
582 KIERAN - Introduction to Trees	x	x	x	x	x	x		x	x	
582 MILNE - Because of a Tree			x			x				
582 PODENDORF - True Book of Trees	x	x	x	x	x	x		x	x	
582 STERLING - Trees and Their Story									x	
582 SWENSON - Trees, Birds, Flowers	x	x								
582 SWENSON - Child's Book of Trees	x	x							x	
582 WATTS - Doubleday First Guide to Trees						x				
582 WEBBER - Thanks to Trees								x	x	
582 WEED - Our Trees and How to Know Them		x								
583 PODENDORF - Weeds and Wildflowers	x		x	x		x		x	x	
583 WILDE - A Child's Book of Flowers		x							x	
583 ZIM - Flowers, American Flowers		x				x		x	x	
634.9 ADLER - Tree Products		x						x	x	
MISSOURI HANDBOOK SERIES:										
KELLER - Common Rocks and Minerals of Missouri		x	x	x		x	x	x		
RAMSAY - Our Storehouse of Missouri		x	x	x			x	x		
RICKETT - Wild Flowers of Missouri		x	x	x		x	x	x		
SETTERGREN - Trees of Missouri	x		x	x	x	x	x	x	x	

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 147

EXPERIMENTAL PRE-CAMP PROJECT

"FROM A SEED TO A ????"

Fifth grade students in their varied course of studies are introduced to many building blocks of information. This experiment is designed to show the progression of steps necessary for growth and development in a plant producing oxygen.

In this type of experiment, anticipation of success on the student's part is high. Learning opportunities are available quickly, especially if a seed does not germinate or if a plant withers and dies prior to transplanting outside at camp or school.

Should a seed not germinate within a week REPLANT.

" FROM A SEED TO A ????" kit contains:

3	Jiffy peat strips of 12 individual pots
3	Plastic trays - (shells for the jiffy peat strips)
1	Bag of planting soil. (from your Principal)
1	Package of Marigold seeds. (from your Principal)

In addition you need:

1	#10 Can from the Cafeteria
1	Sheet of clear plastic from the Cafeteria
1	Tablespoon
1	Ruler
1	Old Newspaper

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
MULTI APPROACHES TO

Form # 148

" SEED TO ???? UNIT "

Search newspapers and magazines for seed company offers, and bring in find. (January and February best time)

Write letter requesting seed catalog and have sent to school.

Look through catalog and make various selections on basis of:

- Area to be Beautified at school or camp.
- Soil condition
- Soil preparation
- Size of flower, growth height
- Care necessary
- Disease resistance
- Drought resistance
- Bug resistance
- Sunlight necessary

Each student prepare simulated order form and place with "I O U" Seed Company.

Oral reports and discussion on meanings of:

- Hybrid Seed
- Seeds per ounce
- Importance of well drained plot
- Sunshine
- P^h Factor
- Soil test
- Soil profile
- Last frost and its significance
- Rotation of crops
- Perennial
- Seed Germination
- Wilting
- Horticulture
- Annuals
- Mulch
- Tools
- Fertilizer
- Vermiculite
- Perlite
- Photosynthesis

POSSIBLE EXPERIMENTS TO

" SEED TO ???? UNIT "

1. Allow students to divide into three units - A, B, C.

2. Team A representative marks on one outside end of their tray the letter A

   Team B representative marks on one outside end of their tray the letter B

   Team C representative marks on one outside end of their tray the letter C

3. Another member of each team spreads newspaper on floor

4. Another member acquires the #10 cans from cafeteria, marks inside of can at 2" from bottom

5. Another member fills can with starting soil to marked area. Make sure all lumps are broken. (over newspaper)

6. Another member draws a diagram of 12 compartments with appropriate marked end showing his team's letter - A, B or C -- each compartment to be 1" square thus 6" x 2".

7. THEN Team A: Representative places planting mix in the 12 compartments and levels to top with ruler, NO tamping, its now ready for seeding.

   Team B: Representative does same, plus add 4 teaspoons water slowly in each unit.

   Team C: Representative mixes 2 cups of water into can and mixes with soil then places premoistened soil in each section, leveling with ruler -- NO tamping.

8. EACH INDIVIDUAL TEAM MEMBER THEN (after listening to directions) places one seed in one compartment and prints his name on correct square of diagram. (Press seed GENTLY to soil)

9 Another member of Team A - Do not place plastic over top of seeds

   " " " Team B - Place plastic over top of seeds

   " " " Team C Place plastic over top of seeds

10. Another member records date and time.

11. Another member places tray anywhere in room except on a unit vent!

12. Another member records first appearance of sprouts in order of appearance by individual squares.

13. Another member removes and disposes of plastic cover once half of individual squares have sprouts or leaves!

14. Once sprouts appear, water on Friday, Monday and Wednesday.

15. Once all sprouts appear, place to gain Sunlight.

16. Record height of plants in inches.

17. Team A after 4 days water heavily and cover seed 1/16" and place plastic for over week end growth.

SECOND WEEK:

Note direction of growth

Why

Which strip A, B, C, grows fastest

Why

Which strip grows slowest

Why

Turn traps so both sides gain sun benefits

What results are formed when plants strive for sunlight?

Water regularly and record growth until camp or planting outdoors.

Add water when leaves start to wilt or when soil appears to be drying out.

ALTERNATES:

After plants come up, stop watering one or two squares and note difference

in color: 1st. day ____________ 2nd.day ____________________

3 rd. day _______________ etc.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM#160

SUGGESTIONS FOR ASTRONOMY

- I. Pre-camp concepts and vocabulary
  - A. Universe
  - B. Galaxy
    - 1. Milky Way
    - 2. Others
  - C. Stars
    - 1. Magnitude--measures apparent brightness
      - a. One--brightest
      - b. Five--dimmest visible to naked eye

    - 2. Apparent motions from the earth
      - a. Daily
        - (1) Some rise and set
        - (2) Some circle pole (circumpolar)
  - D. Constellations
    - 1. Some important ones
    - 2. Zodiac--significance of
  - E. Solar System
    - 1. Sun
    - 2. Planets
      - a. Motion with respect to the sun
      - b. Motion with respect to the earth
        - (1) Planet means wanderer
        - () Appear to move backwards at times
        - (3) Located in the Zodiac
    - 3. Our moon
      - a. Motion
      - b. Phases
  - F. History of astronomy
    - 1. Earth centered
      - a. Rise of Astrology
      - b. Attempt to explain motions visible from the earth
    - 2. Sun centered
    - 3. Modern view
  - G. Instruments
    - 1. Telescope
    - 2. Spectrograph
  - H. Other vocabulary
    - 1. Gravity
    - 2. Light-year

- II. Camp Activities (four to six simultaneous groups)
  - A. Group 1 (to be scheduled first if possible). Draw constellations near Polaris on 18" by 24" white drawing paper. Directions are attached. Use list in next section.

B. Group 2: Outdoor observation with the naked eye.
  1. Stars
    a. Polaris
    b. Pointer Stars
    c. Bright stars for fall
      (s) Vega--overhead
      (2) Deneb--below Vega
      (3) Altair--lower and to the right (Above three form right triangle
      (4) Arcturus--low south, setting by October, also follow arc of handle of Big Dipper
  2. Constellations (all are around Polaris)
    a. Big Dipper
    b. Big Bear
    c. Little Dipper
    d. Cassiopeia
    e. Hercules
    f. Dragon
    g. Cepheus
    h. Perseus
    i. Andromeda
    j. Swan
    k. Great Square
  3. Milky Way

C. Group 3: Observation with telescope. Fall 1970 (hopefully) Venus, Jupiter, and moon (if in proper phase that week).

D. Group 4: Stories based on constellations.

E. Group 5: Game Comet (Bingo like game based on astronomy)

F. Group 6: Filmstrips (or movies if preferred)

III. Post-camp

A. Shoe box diorama of constellations. Punch holes for stars and use a flashlight.

B. Learn constellations of Zodiac. Do drawing at school. Observe at home.

C. Creative stories about constellations.

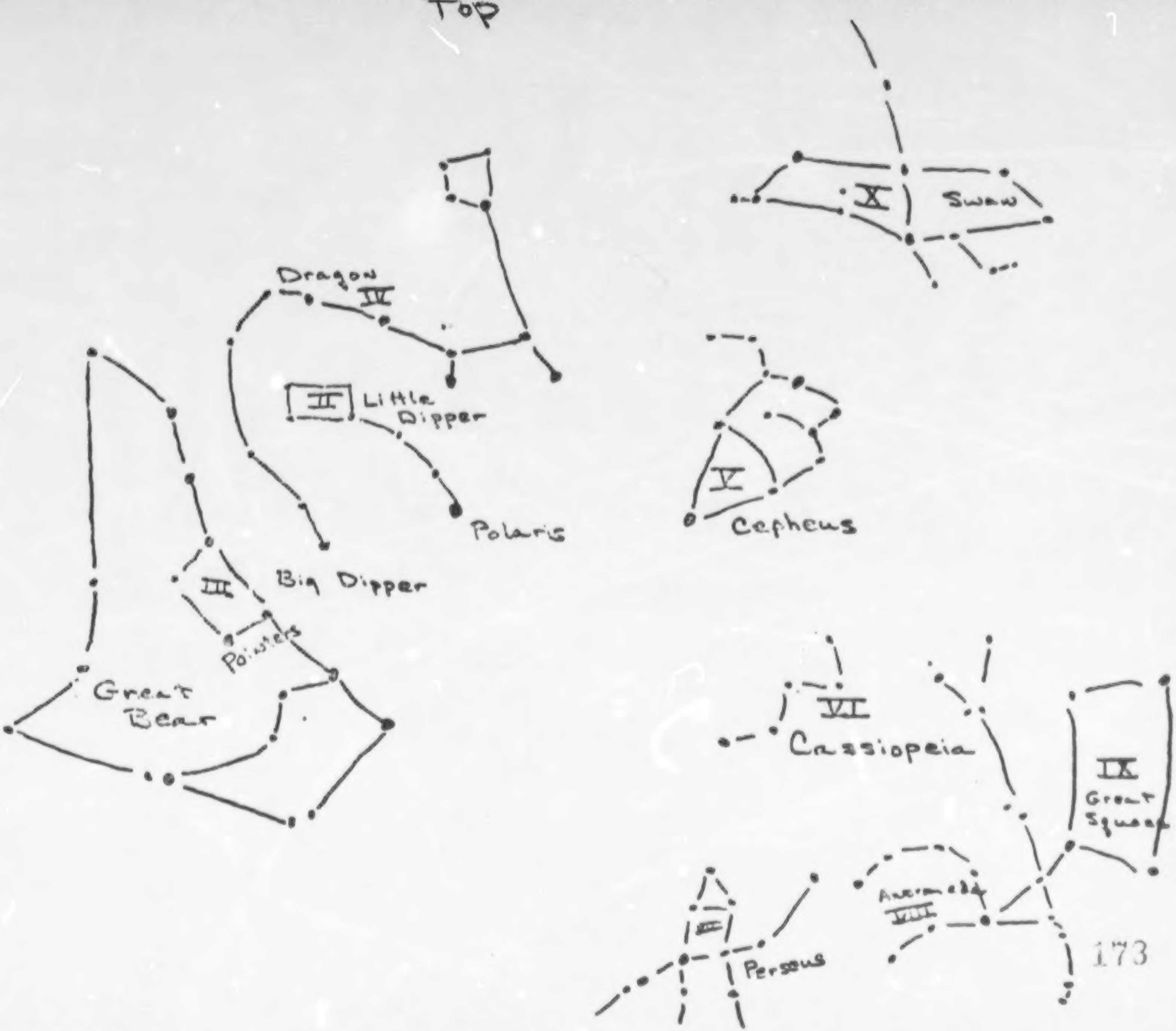
D. Observe change in stars other times of the year.

IV. Materials

A. Filmstrips (at Concord)
  1. "The Night Sky"
  2. "Solar System", Elementary Science Series Set 2, McGraw Hill
  3. "Introduction to Solar System", Solar System Set 2, McGraw Hill
  4. "What are Stars", Elementary Science, Set 7, McGraw Hill

B. Films: County Audio-visual
  1. Exploring the Night Sky 50475
  2. How Many Stars 50685
  3. What Do We See In the Sky F52100
  4. Star Seekers F52746

C. Books
  1. Know the Stars. H.A. Rey. Scholastic. Very good for both teacher and student.
  2. Find the Constellations. H.A. Rey. Houghton Mifflin Company. Boston. (a longer hardback edition of above, also older).
  3. The Golden Book of Astronomy. Simon and Schuster, New York.


Top
X
Swan
Dragon
IV
II
Little Dipper
Polaris
Cepheus
V
III
Big Dipper
Pointers
Great Bear
VI
Cassiopeia
IX
Great Square
Andromeda
VIII
VII
Perseus

STEPS FOR STAR CHART

I. Label the following
  A. Top
  B. Bottom
  C. Left and right (all four corners)

II. Polaris--Little Dipper
  A. Find middle of the paper; place dot, (Polaris)
  B. Continue placing stars to form Little Dipper (connect dots)

III. Big Dipper
  A. Go to left bottom of Polaris. Draw pointer stars.
  B. Continue to form Big Dipper.
  C. Follow stars around to form Big Bear.

IV. Dragon: Begin between Little Dipper and Big Dipper and form Dragon (to top of chart).

V. Cepheus: Start right of Polaris follow chart to draw Cepheus.

VI. Cassiopeia: Below Cepheus to the right.

VII. Perseus: Below Cassiopeia

VIII. Andromeda: Right of Perseus below Cassiopeia

IX. Great Square: Connected to Andromeda to the right.

X. Swan: Above Cepheus to the right

AT CAMP

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 165

FIELD ADVENTURE EQUIPMENT LIST

Teaching tools, supplies and equipment are available in the blue trailers. Areas are marked on outside of doors.

Teacher and student lesson plus forms are available in the upright boxes in Lodge.

It is suggested counselor and/or teachers secure the necessary forms before assembly of students.

Materials and equipment to be utilized on field trip can be carried by "Porters" after being secured by counselor and/or teacher from the trailer.

Upon completion of the activity please SEE that the equipment is returned to its proper place for the NEXT group's usage.

FIELD ADVENTURE Groups A, B, C, D, E takes:

1 rock bag (samples), available on request

1 plastic bag (trash collection)

1 wooden jar tray containing 12 jars
(insect holding)

Kit for making plaster casts

Kit for spider web collection

Form#_____

FIELD ADVENTURE

Review Field Study Rules

1. Walk, don't run.
2. Avoid trampling, cutting or marking plants.
3. Never dig up plants unless asked to do so by instructor.
4. Only collect plant leaves or specimens as directed by your instructor.
5. Avoid disturbing or killing small animals such as insects, frogs, snakes and chipmunks.
6. When walking in the woods or on the trail, don't trip on roots, etc.
7. Don't let overhanging branches snap back and hit the person behind you.
8. Step on top of logs rather than over.
9. DO NOT tease, chase or throw at live stock, ducks, chickens!

GROUP A

Across dam to Tambo - meets at cafeteria door

GROUP B

Red Cedar Lodge to bridge to Tambo - meets at recreation door.

GROUP C

Start at base of dam and round the lake, cross bridge, up creek to spring, then cross the dam on way back. Meet at the lake side recreation door.

GROUP D

Behind office and up the hill to craft area then down to the base of the hill by the Red Cedar Lodge, follow trail by spring up the creek and locate another spring - meets at Lake cafeteria door.

GROUP E

Bell Tower, camp fire area, follow left fork of creek to fence, then right along fence, beyond road and back to camp area along fence by art shelter.

What to look for:

Spider webs, ground, tree
Erosion
Insect homes
Animal tracks (plaster of pairs)
Animal homes
Stumps
Rock outcroppings
Creeks--springs
Rotten logs
Collect material for arts and crafts
Pretty or unusual trees and plants
Pretty spots - your home in the woods
Pick up trash, bottles, leave it cleaner than when you came.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 162

FIELD ADVENTURE

Rest stop halfway through the trip to check collections and set sight for trip completion and identification.

Each camper is responsible for one item and its identification.

What to collect:

- Caterpillars
- Single samples of the following:
  - Beetles
  - Moss
  - Lichen
  - Butterflies
  - Galls
  - Mushrooms
  - Fungus
  - Moths
  - Feathers
  - Seeds
  - Nuts
  - Persimmons
  - Partly decomposed leaves, shown veins
  - Skulls
  - Skins
  - Flower
  - Fruit
  - Other insects

PLUS ---pick up trash and bag it!

How far did you travel?

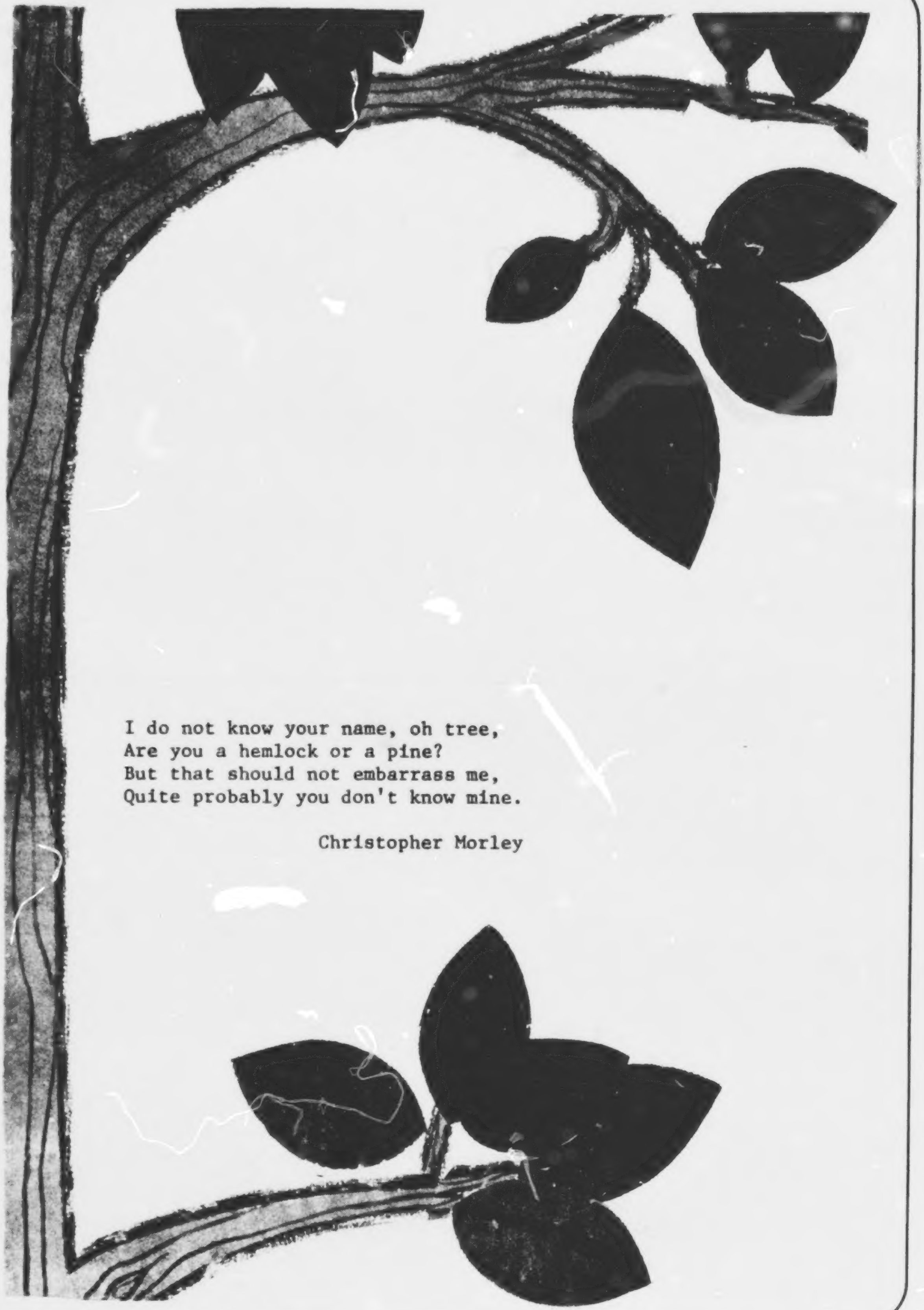
Boy Scout's make a mile in 8 minutes

Olympic Stars............. 4 minutes

You will be out until 11:20 or 3:30

SOOOoo..

Form # 168



I do not know your name, oh tree,
Are you a hemlock or a pine?
But that should not embarrass me,
Quite probably you don't know mine.

Christopher Morley

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM#169

TREE IDENTIFICATION EQUIPMENT LIST

TREE IDENTIFICATION:

Clip boards

Pencils

Student hand out:

Tree ID Trail Form#_____
_____

The Most Common Trees of Missouri
Form#_____
_____
_____
_____
_____
_____

Teacher only:

Tree ID Trail Form#_____
_____

Guide for Tree Identification
Form#_____
_____
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The Most Common Trees of Missouri
Form#_____
_____
_____
_____
_____
_____

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

TREE IDENTIFICATION TRAIL --- CAMP MO-VAL --- STUDENT'S COPY

Form# 170

STUDENT'S NAME: ______________________________

DIRECTIONS: FIND THE TREES MARKED WITH A YELLOW BAND AND METAL PLATE; STUDY THE TREE CAREFULLY; RECORD THE COMMON NAME OF THE TREE IN THE COLUMN BELOW; LIST THE USES OF THE TREE AND WRITE COMMENTS WHICH WILL HELP YOU REMEMBER THE TREE.

NUMBER	COMMON NAME	USAGE	COMMENTS
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Form # 171

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
Student's Copy

NUMBER	COMMON NAME	USAGE	COMMENTS
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			

Form # 172

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE IDENTIFICATION TRAIL

Directions: Find the trees marked with a yellow band and metal plate; study the tree carefully; Take road by nurse's quarters to just beyond art shelter.

NUMBER	COMMON NAME	USAGE	COMMENTS
	American Holly	Furniture; food for birds	Red berries remain on tree throughout the winter
R 1	Service Berry, Juneberry	Landscaping	Blooms in Spring; mistaken at distance for Wild Plum
R 2	Sugar Maple, Hard Maple	Shade Trees	Colorful in Fall
R 3	Mocker Nut Hickory	Wildlife Food	Not desirable
L 4	Post Oak	Rough lumber	
L 5	Black Jack Oak	Lumber	Note bell shaped leaves
L 12	Flowering Dogwood		Missouri State Tree
L 1 (Repeat)	Service Berry, Juneberry		
P 6	Eastern Red Cedar	Cedar chests, Cedar closets, Fence	Good wildlife cover when growing in open. Note: Never prune a red cedar.
L 7	White Oak	Lumber, barrel staves, posts	Notice difference in white and post oak bark
R 8 (Repeat of 4)	Post Oak with scar	Lumber	Fire cooked cambium inside layer and tree is attempting to heal.
Directions --	100 ft. take left fork of road		
R 9	Northern Red Oak	Lumber	Usually more than 7 - lobed
10 and 11 void			
L 12 (Repeat)	Flowering Dogwood		Missouri State Tree -- leaf tapers to both ends. Veins follow the curve of the margin.
Directions --	Fragrant Sumac is only 2 to 3 feet tall. Look carefully to right of trail.		
R 13	Fragrant Sumac	Ornamental in Cities, Ground cover	Called Skunk bush, break a twig and smell.

Form# 173

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE IDENTIFICATION TRAIL

NUMBER	COMMON NAME	USAGE	COMMENTS
Directions --	Go left at clearing by red marked tree. Follow yellow tagged trees without numbers to creek bed. Follow creek bed down hill. Watch for snakes and footing at outcropping of sandstone. Black Jack Oak is located 10 feet from outcropping.		
R 14 (Repeat of #5)	Black Jack Oak		
Directions --	Continue along creek bed. Small mulberry near creek bed.		
R 22	Mulberry	Wildlife food and lumber	Note leaf shape. Fragrant sumac near by.
Directions --	Continue along creek bed. Follow yellow tagged tree without number by creek bed. Short distance past tagged tree is a sassafras 30 feet to right of creek bed.		
R 15	Sassafras	Sassafras tea, Carving wood	Notice leaf variation
R 16	Wild Grapevine	Wildlife food	
Directions --	Continue along between creek beds. Cross where they meet. Note den below rock on side of hill. Continue along creek bed past bonfire area.		
R 17	Ash	Lumber	Notice opposite branching and Virginia creeper vine
L 18	Sycamore	Lumber	Notice peeling bark, seeds on ground and tree color in crown. Plus barbed wire.
Directions --	Behind Sycamore towards lake.		
19	Sprout Black Cherry	Furniture Lumber	Notice bag worms.
19	Black Cherry		Notice bark
20	Elm	Lumber	Notice diseased leaves
Directions --	Walk towards road and lake. Stay off trail and keep to right.		
21	Persimmon	Wildlife food	
22 (Repeat)	Mulberry	Wildlife food and lumber	Notice difference in previous mulberry leaves.

Form# 174

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

TREE IDENTIFICATION TRAIL

NUMBER	COMMON NAME	USAGE	COMMENTS
15 (Repeat)	Sassafras	Next to mulberry	
23	Deciduous Holly (Possum Haw)	Wildlife food	
18 (Repeat)	Sycamore		Note branch over road
Directions -- Behind sycamore still on north side of road.			
	Redbud	Ornamental; food for beaver, birds	
24	Black Haw	Wildlife food	Small tree
25	Elderberry	Wildlife food	Bush
Directions -- Cross the road here.			
22 (Repeat)	Mulberry		
Directions -- Follow road towards lake not up hill.			
R 26	Hackberry	Lumber	Large tree
R 27	Slippery Elm	Lumber	Large tree
R 28	Black Willow	Lumber	Below bridge note circle for wearing of band the previous year.
	Alder		
	White Pine	Furniture and Commercial	Unusual bark
	Black Walnut	Furniture, gun stocks, fruit good to eat	
	Wild Red Cherry	Cover for soil, food for birds	Fruit
	Pin Oak		
	Black Oak		
	Shagbark Hickory		
	Winged or Shining Sumac		

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 175
THE MOST COMMON TREES IN MISSOURI

STUDENTS' BOOKLET

THE MOST COMMON TREES
AT
CAMP MO-VAL

Revised March, 1973

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM # 176

THE MOST COMMON TREES IN MISSOURI

CAMP MO-VAL

For Leaf Collecting Exercises

There are many kinds of trees here at Camp Mo-Val. You will soon become acquainted with the common trees that are native to this area.

On your hikes about Camp Mo-Val you will probably see oak trees most often. Do you always recognize the oaks? You probably can recognize the oak tree by its bark, leaves, or acorns. There are several varieties of oak trees here, but essentially they are of two types, black oaks and white oaks. If you can find the leaves and acorns of the oaks you will be able to identify most of them with the drawings on the following pages.

For further help please look for
How to Know the Trees by H. E. Jaques

Trees - A Guide to Familiar American Trees - by Herbert S. Zim and Alexander C. Martin

Master Tree Finder - by May Theilgaard Watts

The First Book of Trees - by M. B. Cormack

Missouri Trees - Missouri Department of Conservation - by J. E. Wylie and Ramon Gass

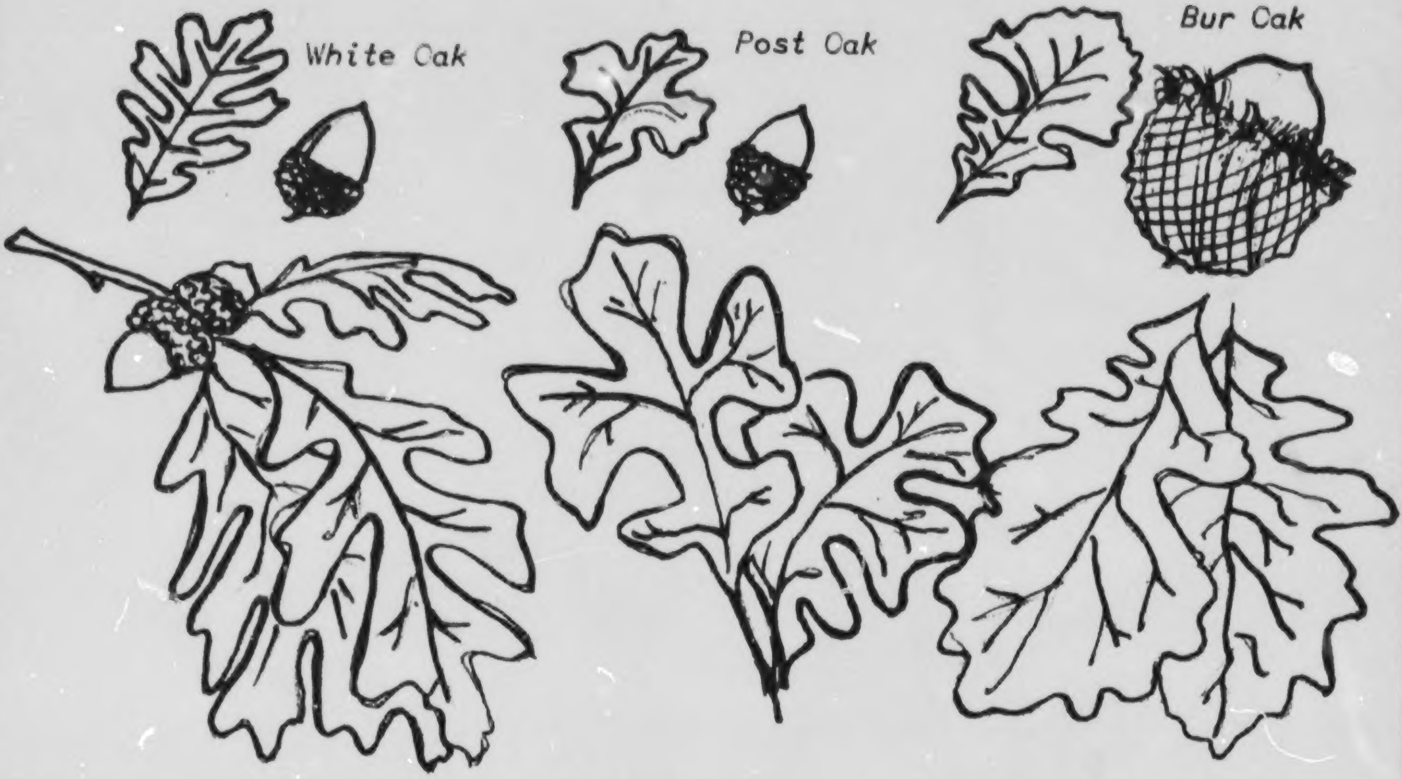
These books are in your Outdoor Education Library.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM#177

THE MOST COMMON TREES IN MISSOURI

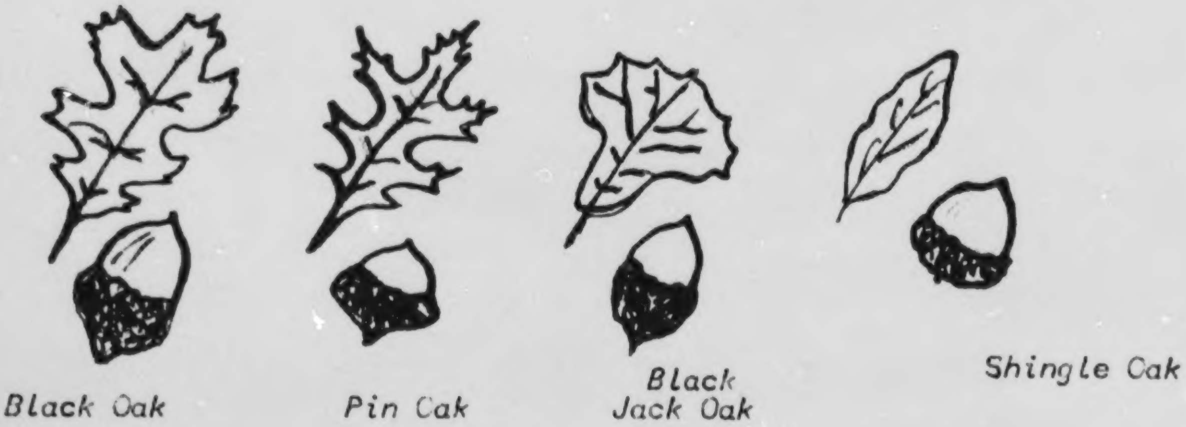
WHITE OAKS

Leaves and Acorns


White Oak
Post Oak
Bur Oak

BLACK OAK

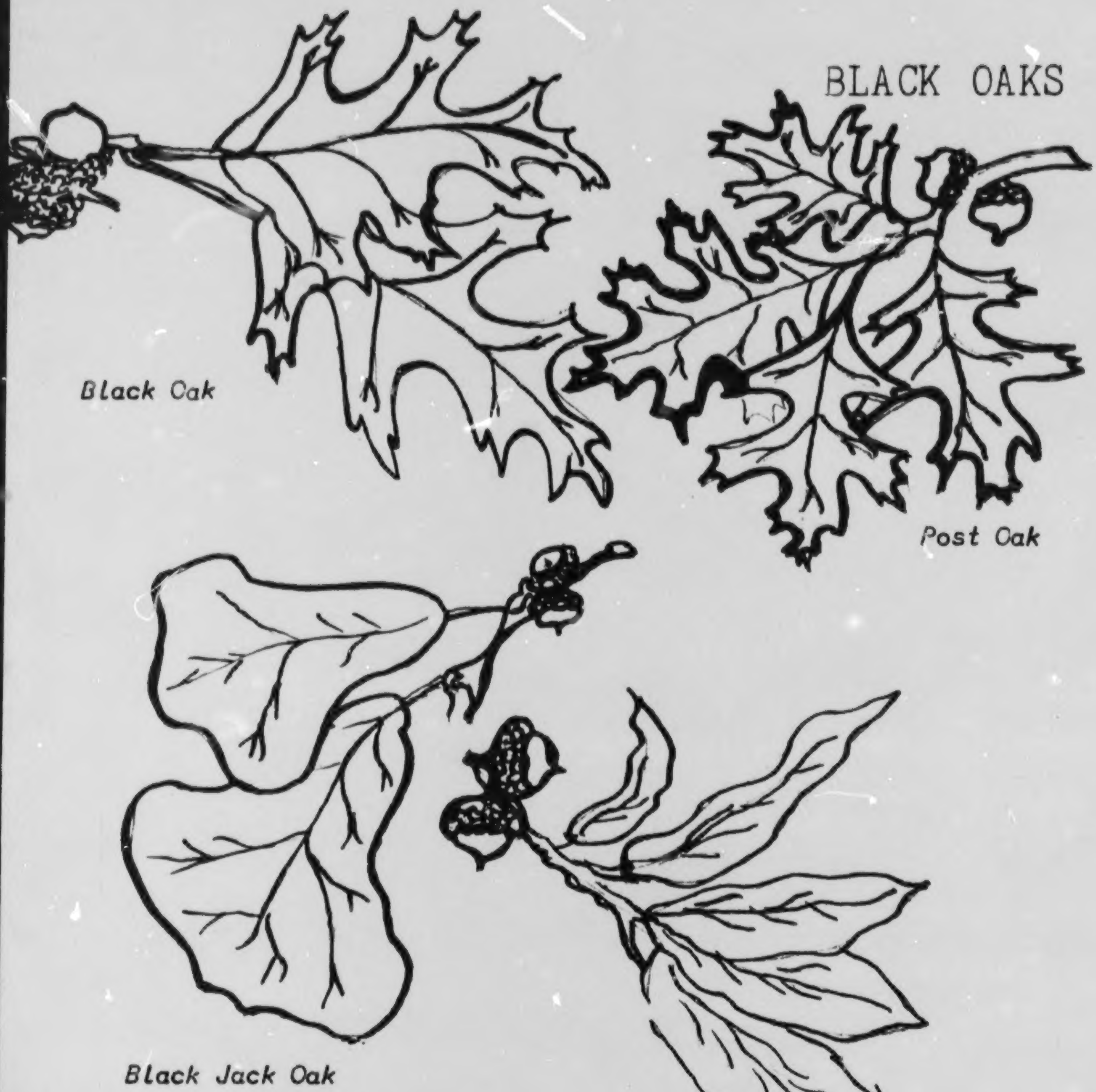
Leaves and Acorns


Black Oak
Pin Oak
Black Jack Oak
Shingle Oak

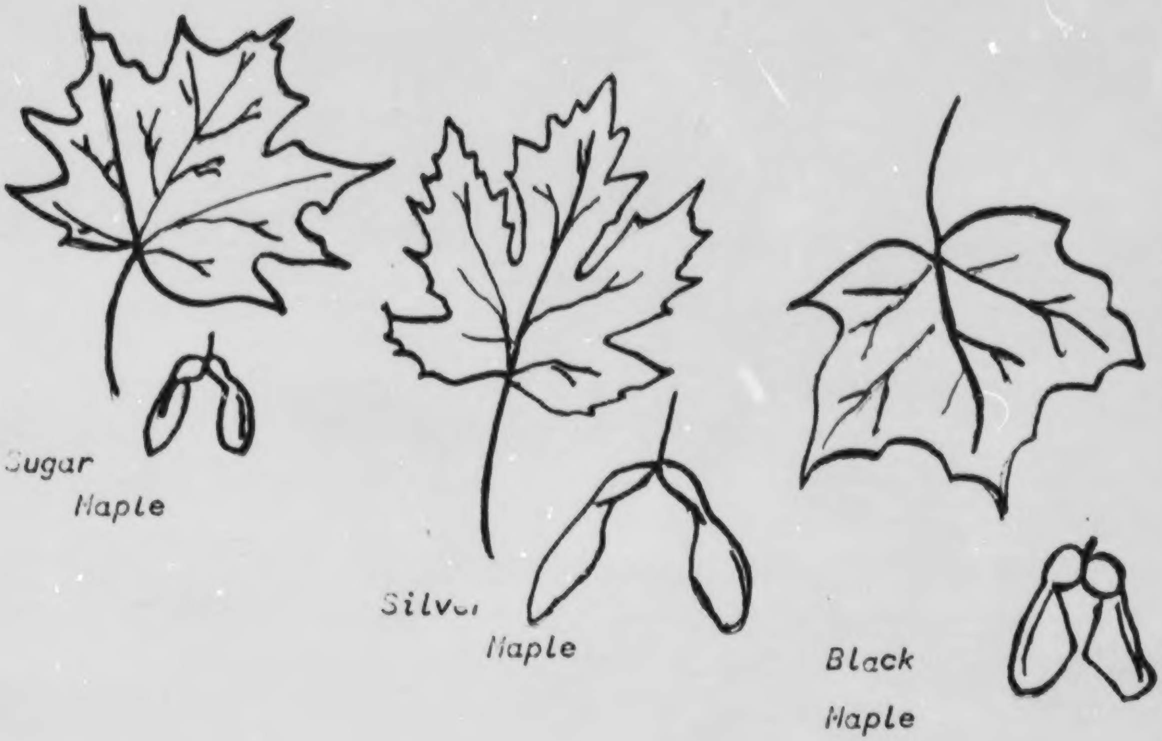
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM#178

THE MOST COMMON TREES IN MISSOURI

BLACK OAKS


Black Oak
Post Oak
Black Jack Oak
Shingle Oak

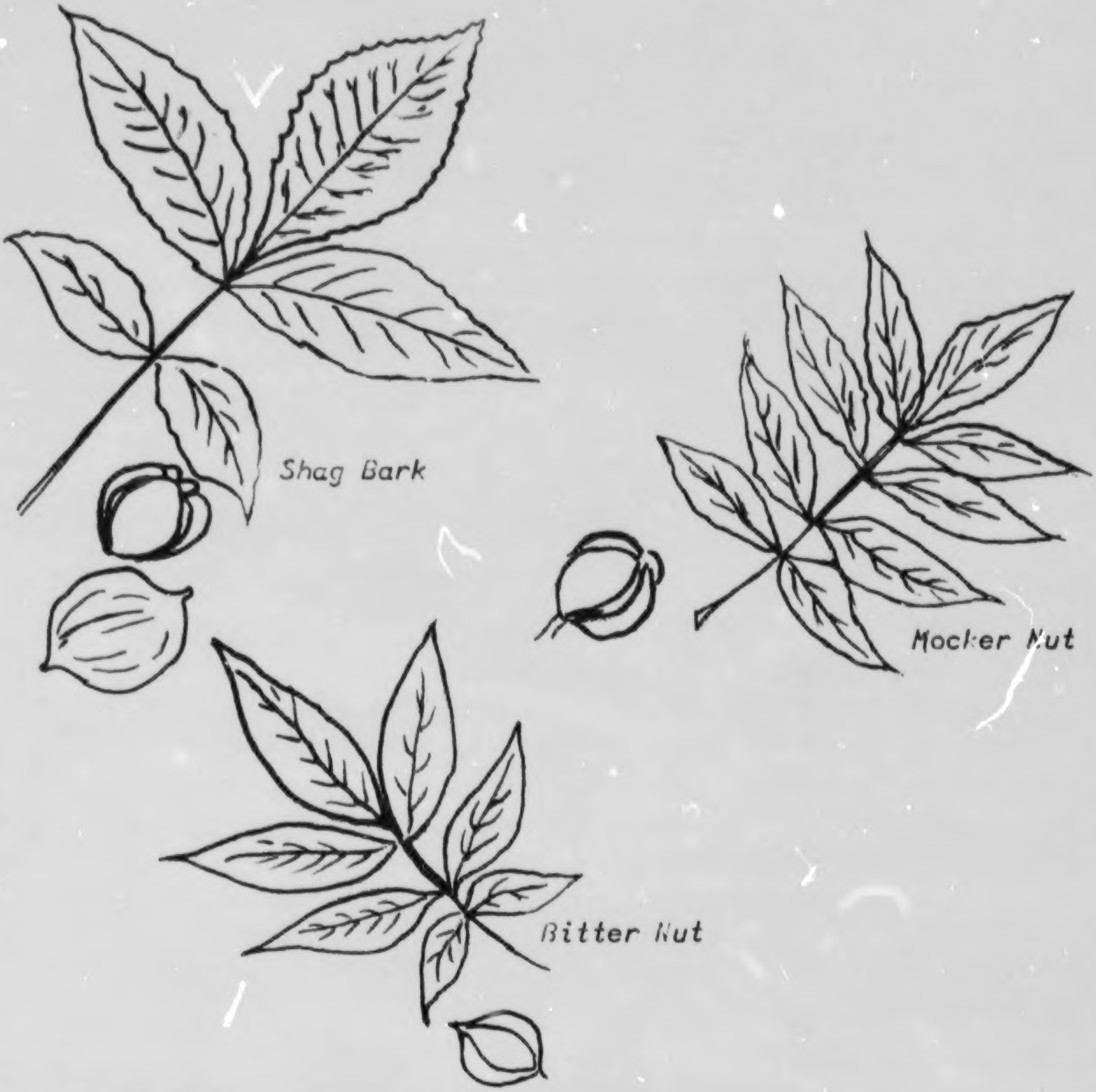
MAPLES


Sugar Maple
Silver Maple
Black Maple

Maples are common trees in this area. Look at the leaves and seeds in the following drawings. Notice the general shapes of the leaves, and try to find silver maples and sugar maples here at the camp.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 180
THE MOST COMMON TREES IN MISSOURI

HICKORIES

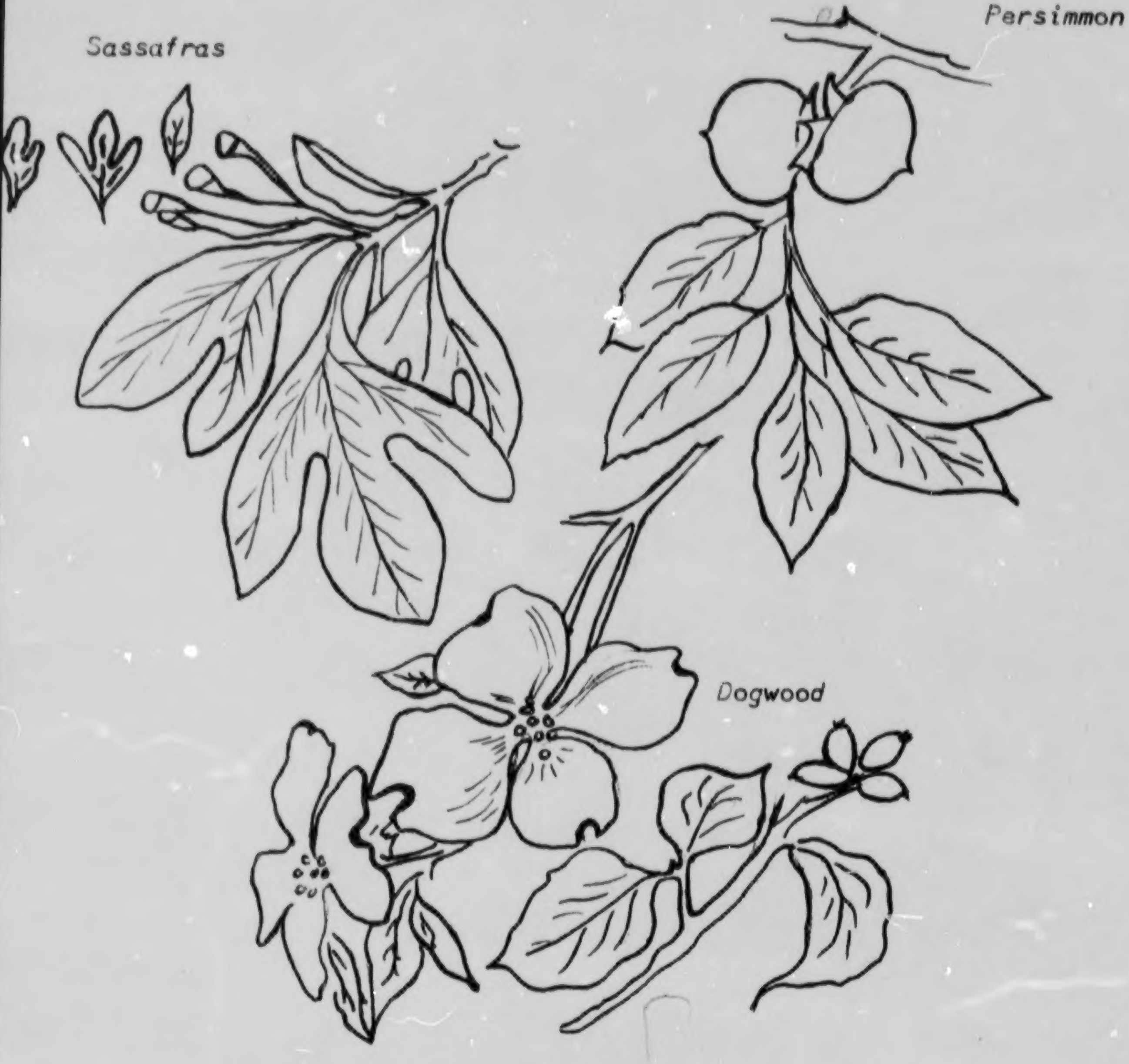


Hickory trees are quite common here. If you are at camp in the fall you will be able to find hickory nuts. Break some of them open and taste the kernels. The small thin shell nut of the Shag Bark Hickory is sweet and good to eat. You will find the mocker nut to have a thick shell and very small kernel. After tasting the bitter hickory nut you will surely know it. Notice the very large leaves, five to seven, and shaggy bark of the shag bark hickory. Notice that the mocker nut and bitter nut have seven to nine leaflets.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 181

THE MOST COMMON TREES IN MISSOURI

MO-VAL FRUIT, TEA, AND FLOWERS



Sassafras has peculiar, mitten shaped, three lobed leaves. Some are entire; a few are two lobed. The twigs and leaves are sweet smelling.

The persimmon is a slender, attractive tree. The glossy green leaves become colorful in the fall. The fruit is good to eat after frost. You will know when the fruit is ready to eat by a simple taste test. There are varieties that ripen in summer. You may possibly find some here.

The beautiful white flowers of the dogwood appear in the spring. You will find bright red berries on the shrubs in the fall. Birds like to eat dogwood berries. You will be lucky if you find any.

Form # 182

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE IDENTIFICATION GUIDE
INDEX
(Pictures and Data)

Form #

1. Serviceberry or (Shadbush, Juneberry)---184,185
2. Maple; Sugar, Hard or Rock---186,187
3. Hickory; or White Mockernut---188,189
4. Oak, Past (also Irondak)---190,191
5. Oak, Black Jack---192,193
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11. Oak, Northern Red---204,205
12. Dogwood, Flowering (repeat)---206,207
13. Sumac, Fragrant---208,209
14. Oak, Black Jack (repeat)---210,211
15. Mulberry, Red---212,213
16. Sassafras---214,215
17. Wild Grapvine---216,217
18. Ash, White---218,219
19. Sycamore, American---220,221
20. Cherry, Black---222,223
21. Elm, American---224,225
22. Persimmon---226,227
23. Mulberry, Red (repeat)---228,229
24. Sassafras (repeat)---230,231
25. Deciduous Holly or Possum Haw---232,233
26. Sycamore (repeat)---234,235
27. Redbud---236,237

Form # 183

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE IDENTIFICATION GUIDE
INDEX
(Pictures and Data)

Form #

28. Black Haw ---------- 238,239
29. Elderberry ---------- 240,241
30. Mulberry (repeat) ---------- 242,243
31. Hackberry ---------- 244,245
32. Elm, Slippery ---------- 246,247
33. Willow, Black ---------- 248,249
34. Alder ---------- 250,251
35. Pine, White ---------- 252,253
36. Walnut, Black ---------- 254,255
37. Cherry, Wild Red ---------- 256,257
38. Oak, Pin ---------- 258,259
39. Oak, Black ---------- 260,261
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41. Sumac, Winged, Shining ---------- 264,265
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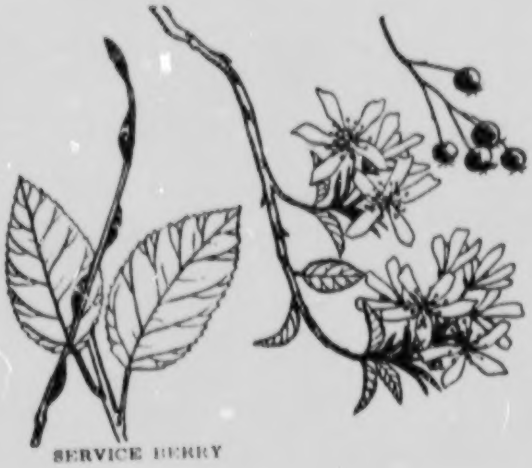
Form # 184

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION


SERVICE BERRY

SERVICE BERRY,
SHADBUSH JUNEBERRY

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form# 185

TREE DATA SHEET

1. NAME: Serviceberry /Amelanchier arborea/ (1-12) / Shadbush, Juneberry/

2. CLIMATE:

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT: grows best on upland soils at the edge of the forest (12).

5. SOIL: grows best on rich upland soil, but has been known to do well on dry and stony soils (12).

6. TOPOGRAPHY:

7. BARK: light gray, smooth, when young; breaking into scaly ridges when older (12).

8. BUD: long and slender, pointed (12).

9. FLOWER: appear before the leaves in early spring; white, in drooping clusters; each flower with 5 strap-like petals 1/2" long or longer (12).

10. FRUIT: Reddish-purple berry, sweet and juicy, 1/3-1/2 " in diameter, edible, ripening in June. Sought after by many species of wild life (12).

11. LEAF: [✓ simple]/compound; [✓ alternate]/compound, slender, stalked, oval in shape, 2-4" long, finely toothed, hairy when young, smooth with silky hairs along the veins; later base of leaf is rounded or slightly indented near the stalk (12); heart-shaped or rounded at the base, finely serrate, and ovate or ovate-oblong in outline (6).

12. SEED: same as the fruit.

13. TWIG: smooth and light gray, bitter tasting (12).

14. WOOD: Heavy, strong, close grained. May be used for tool handles

15. MATURITY: small, seldom over 30' high or 8" in diameter (12).

16. HOST TO:

17. LARGEST KNOWN: Serviceberry Allegheny (Amelanchier laevis) (1970), 6',2", circumference at 4-1/2', 60' in height, Silers Bald, N. C.; John R. Vosburgh, Washington D. C.

18. DISEASE POTENTIAL:

19. CURRENT USE: ornamental

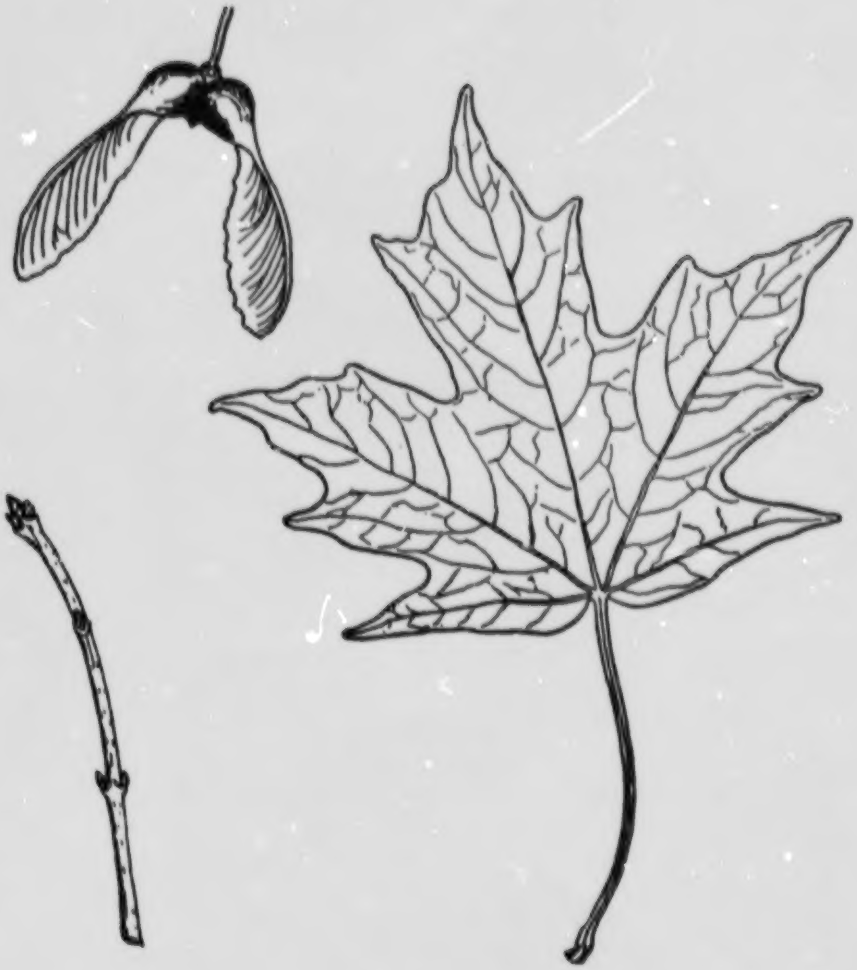
20. HISTORICAL USE:

21. LEGEND:

22. ILLUSTRATION 5, p. 46

Form # 186

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION



SUGAR MAPLE

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form# 187

TREE DATA SHEET

1. NAME: Sugar, Hard or Rock Maple/ Acer (meaning hard or sharp) saccharum (sweet sap)/ (1-12)

2. CLIMATE: Maine to Minnesota, southward to Texas and Florida.

3. GROWTH RATE: Raped in open areas

4. LANDSCAPE PLACEMENT: rocky slopes (6)

5. SOIL: moist, upland soils (6), rich moist, loamy soils, and on dry soil, seldom exceeds 50'. (12). Easily transplanted.

6. TOPOGRAPHY:

7. BARK: light gray and brown and rather smooth, but as the tree grows older, it breaks up into long, irregular plates or scales, which vary from light gray to almost black, (3,5,6,7,8,11) long thick plates or deep furrows (12).

8. BUD: winter buds are smooth and sharp-pointed (2,5,8), narrow, scales, numerous, mostly with fine, gray hairs.

9. FLOWER: yellowish-green, on long threadlike stalks, appearing with the leaves, the 2 kinds in separate clusters (5,6), male blooms on separate trees or on same tree as bisexual flowers, yellow-green in color (12)

10. FRUIT: ripens in the fall, consists of a two-winged "samara" or "key", the two wings nearly parallel, each about 1" in length and containing a seed (2,5,6,7,8,12).

11. LEAF: simple/compound; alternate/opposite; 3-5 inches across, with 3-5 pointed and sparsely-toothed lobes, the divisions between the lobes being rounded. Dark green on the upper surface, lighter green beneath, opposite each other, turning in autumn to dark red, scarlet, orange and clear yellow (2,3,4,5,6,7,8,10,11,12).

12. SEED: enclosed in the fruit (5), ripens in the fall (4)

13. TWIG: smooth, reddish-brown (5,8), slender, shiny (2,4,8,12)

14. WOOD: takes a polish, heard, heavy, strong, close-grained and light brown in color (3,5,6,7,8). Heartwood light reddish brown. Lighter than white oak, but stiffer. One of our most valuable hardwoods. Used for furniture and flooring

15. MATURITY: attains a height of more than 70-130' and a diameter of 3' or more (5,6) 2-3" in diameter. Opposite branching. Slow growth.

16. HOST TO: Sugar Maple borer. Kills large limbs and gradually entire tree by boring under bark. Also larva of leopard moth and white grub.

17. LARGEST KNOWN: in Garrett County, MD Circumference 19'9"; Height 116'; Spread 75'

18. DISEASE POTENTIAL:

19. CURRENT USE: flooring, furniture, show-lasts, novelties, musical instruments, sap yields maple sugar and maple syrup - 45-50 gals = 1 gal syrup, 15-20 gals per tree - 1 tree produces 2.8# sugar; 8# sugar from 1 gal syrup. (2,3,4,5,6,12)

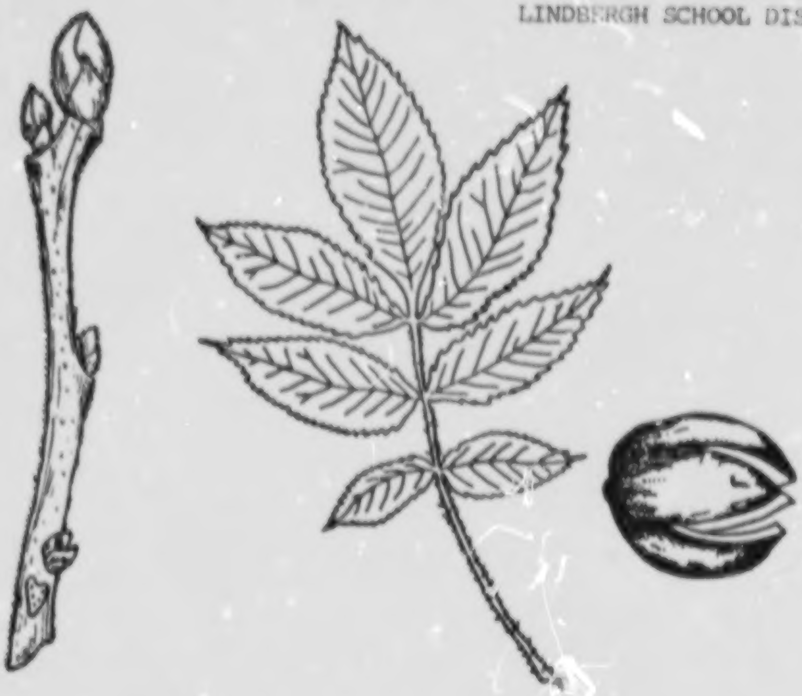
20. HISTORICAL USE: State tree of West Virginia-adopted in 1949, Wisconsin-1949, New York-1956, Vermont-1949. Nearly 1000 species. Indians ate the sugar and syrup, also dried and ground the inner bark into the bread and ate the seeds after frying them in fat (3). Romans used european maple for pikes, levers as well as tables and furniture

Iroquois and Algonquin showed settlers at Jamestown how to tap trees for syrup and then how to boil fluids to make sugar and starch.

21. LEGEND:

If it accidentally forms with a contorted grain, it is known as Curly Maple and Bird's Eye. Are prized for cabinet making.

22. ILLUSTRATION: [illegible] p. 38



MOCKERNUT HICKORY OR WHITE HICKORY

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form 189

TREE DATA SHEET

1. NAME: Hickory or White Mockernut /Carya tomentosa /(1-12)

2. CLIMATE: seem to thrive on the variety of climatic conditions in Missouri (12)

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT

5. SOIL: grows best on rich, well-drained soil, can also be found on dry ridgetops.

6. TOPOGRAPHY:

7. BARK: dark gray; shallowly furrowed.(2,5,7,9,12)

8. BUD: at ends of branches egg-shaped, outer bud scales, dark-reddish-brown falling soon after they are formed, the inner scales yellow to tan, silky.(2,5,9,12).

9. FLOWER: male catkins in the threes 4-8" long, hairy; female flowers on short spikes. (12)

10. FRUIT: globe-shaped nut in a thick husk, strongly scented, red-brown when mature; nut 4-angled with a hard, moderately thick shell; kernel small, dark, sweet.(2,5,7,9,12)
    - Fruit is so small that the nut is a "mockery"; hence nickname, mockernut

11. LEAF: simple/compound; alternate/opposite, 8-15" long, 7-9 leaflets; 5-8" long, broadly elliptical, top leaflets broadest above the middle, tapering to the base; finely toothed, dark yellow-green and smooth above, pale green and hairy **beneath.** (2,5,7,9,12)

12. SEED: same as fruit

13. TWIG: stout, brown to dark gray, with pale lenticels (2,12)

14. WOOD: the finest among the hickories, it has more strength in compression parallel to the grain (crushing strength), more strength in bending and is more rigid than any other hickory. The much-desired sapwood is especially wide in this species. (5,7,12)

15. MATURITY: often 60' high and 1-2' in diameter. (5,7)

16. HOST TO:

17. LARGEST KNOWN: species - Mockernut, Carya tomentosa, year reported - 1969; circumference at 4-1/2' - 9',10", height-130', spread - 71', location of tree and nominator - Richland Parish, La., John C. Morris, Rayville, La. (2)

18. DISEASE POTENTIAL:

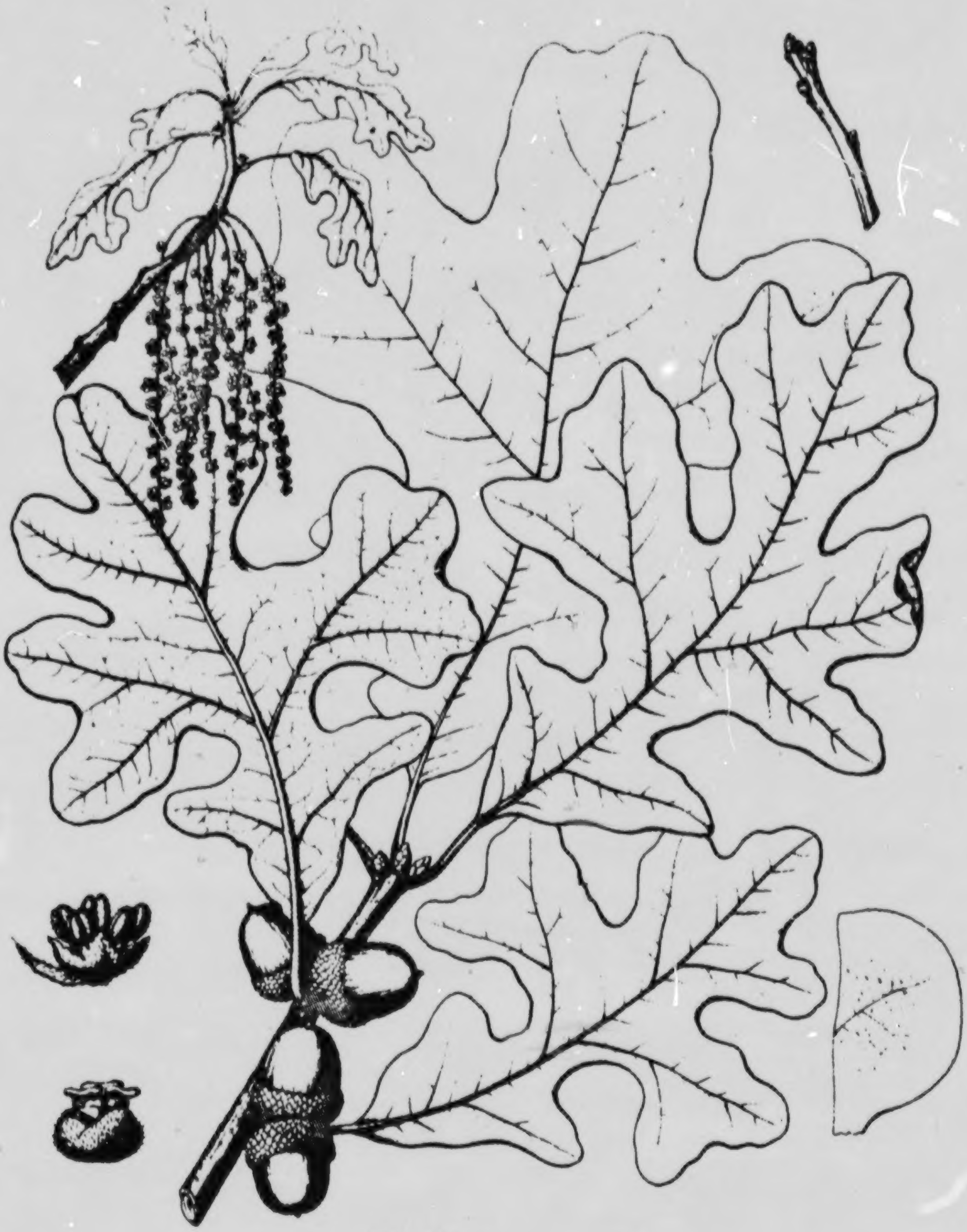
19. CURRENT USE: squirrels and other animals eat the nuts (9,12); axe, pick, hatchet and hammer handles as well as for the manufacture of skis and other athletic equipment (5,12), fuel, shade (5)

20. HISTORICAL USE: by subjecting it to beatings and boiling, Indians realized "a fine oylie or mylke liquor" (9). Pioneers used it for ax handles, wagon shaft and wheels; smoked hams and bacon; harvested nuts

21. LEGEND:

22. ILLUSTRATION: 4, p. 29

FORM#190



POST OAK

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 191

TREE DATA SHEET

/means star after hairs on leaf

1. NAME: Post Oak; also (IRONOAK)/Quercus stellata/ (1-12)

2. CLIMATE: dry (12)

3. GROWTH RATE: slow (9,12)

4. LANDSCAPE PLACEMENT: found on dry ridgetops and bluffs in Mo. (12).

5. SOIL: dry, gravely (11)

6. TOPOGRAPHY:

7. BARK: light brown; divided by deep fissures and scaly ridges; base of young trees often fluted with these ridges (5,7,9,12).

8. BUD: globe to egg-shaped, wooly (9,12)

9. FLOWER: male and female flowers borne separately on the same tree; male flowers in catkins, female flowers on short spikes (5,12).

10. FRUIT: a small acorn, 1/2 - 3/4" long, maturing in one season, sometimes covered with fine soft hairs at the tip cup enclosing 1/3-1/2 of the nut, bowl-shaped (5,9,7,12), small white acorn (11).

11. LEAF: simple/compound; alternate/opposite, roughly egg-shaped in outline, the broadest part above the middle; upper lobes extending to form a cross (5,7,9,12); lobes rounded, dark green and roughened by scattered hairs above, yellow and wooly beneath, thick, almost leathery (11), two middle lobes, usually the largest, are opposite each other in a distinctive crossed pattern (11).

12. SEED: same as fruit

13. TWIG: moderately stout; orange or tan in color, woolly at first, darkens, smooth later (5,9,11,12)

14. WOOD: very heavy, hard, close-grained, light to dark brown, durable in contact with the soil (5,10).

15. MATURITY: medium sized, rarely over 60' tall (9), diameter of 1-2 feet (5).

16. HOST TO:

17. LARGEST KNOWN

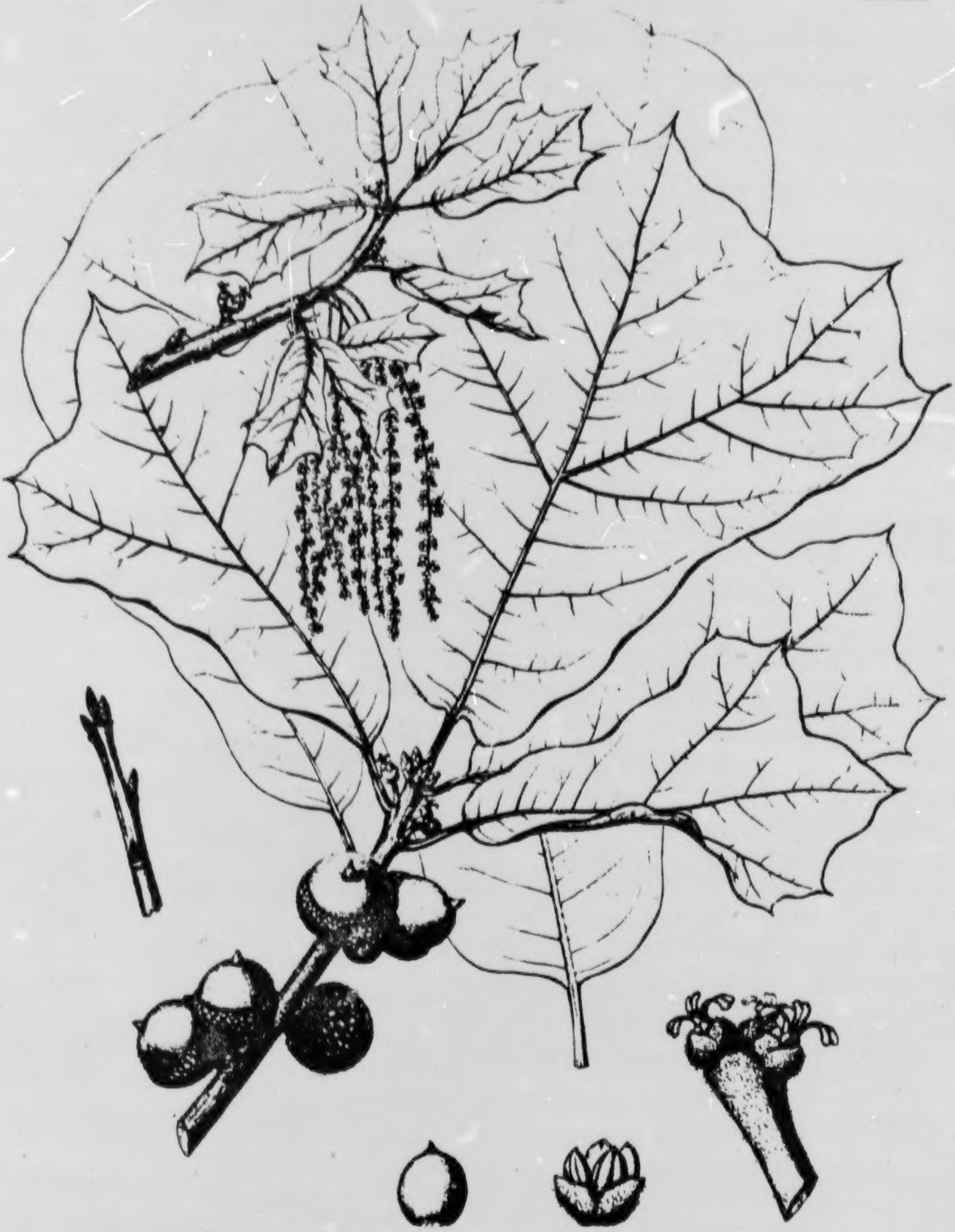
18. DISEASE POTENTIAL:

19. CURRENT USE: few are cut for lumber (12), squirrels, wild turkeys and wood grazing hogs eat the acorn (7,11), largely for rough lumber, flooring and railroad ties (5,11) hogs, raccoon, quail, white-tailed deer, ruffed grouse eat acorns (7,9), furniture (5).

20. HISTORICAL USE: posts, hence the name - post oak.

21. LEGEND:

22. ILLUSTRATION: 14, plate 12

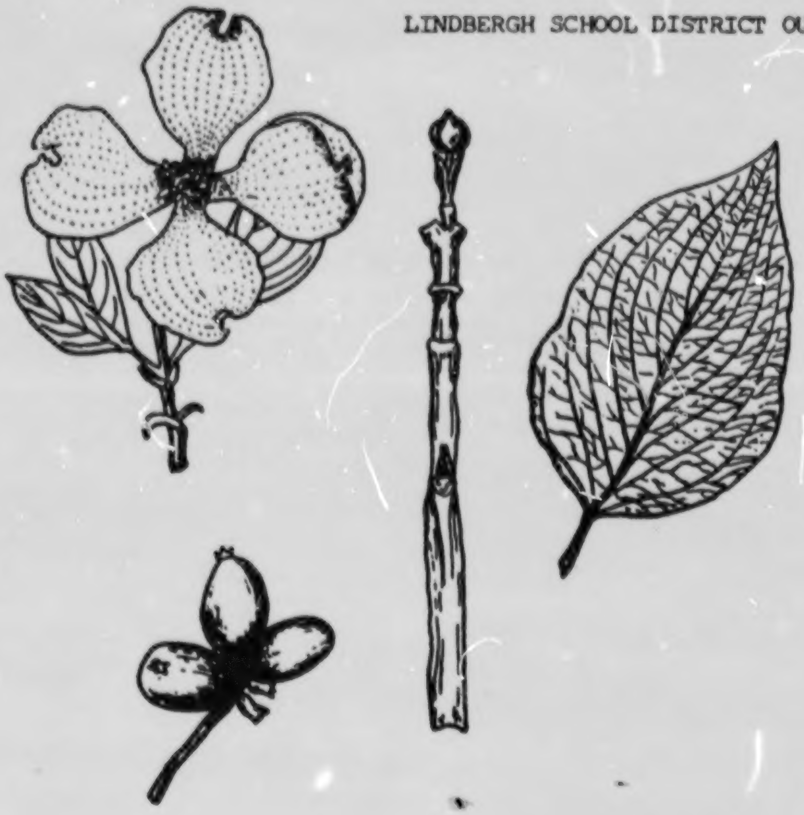


BLACKJACK OAK

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 193

TREE DATA SHEET

1. NAME: Black Jack Oak/Quercus marilandica/
2. CLIMATE: New York to Florida, west to Illinois, Arkansas, Texas (5)
3. GROWTH RATE: slow growing (9)
4. LANDSCAPE PLACEMENT -must be out in the open, cannot grow in shade (9)
5. SOIL: grow well on burned on poor soil (9), sandy and barren lands (5)
6. TOPOGRAPHY:
7. BARK: rough, dark, blocky (7,12), like alligator hide (9), broken into small, hard scales or flakes (5).
8. BUD: Narrowly cone-shaped (9,12).
9. FLOWER: male and female flowers borne separately on the same tree. Male flowers in catkins, female flowers on short spikes (12).
10. FRUIT: yellow-brown nut maturing in 2 years enclosed about 1/2 of its length in a deep, thick cup (7,12), bitter but nutritious (9,12) often striped, 3/4 " long (5)
11. LEAF: simple/compound, alternate/opposite, bristle tipped, typically wedge-shaped, shallowly 3 lobed at apex, dark green above, lighter beneath (5,7,12), wedge or bell-shaped leaf (9,12,15), leathery (9,12), 4-10" long and about as wide. (5)
12. SEED: enclosed in fruit. (5)
13. TWIG: stout and reddish-brown. (9,12)
14. WOOD: heavy, hard and strong. (5) Used for fire wood, mine props and manufacture of charcoal.
15. MATURITY: seldom grows more than 30-40' high. (9)
16. HOST TO:
17. LARGEST KNOWN:
18. DISEASE POTENTIAL:
19. CURRENT USE: acorns and leaves furnish food for squirrel, raccoon, quail, turkey and deer; used as charcoal wood (9), mine props (5).
20. HISTORICAL USE:
21. LEGEND:
22. ILLUSTRATION: 14 plate 7



FLOWERING DOGWOOD

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

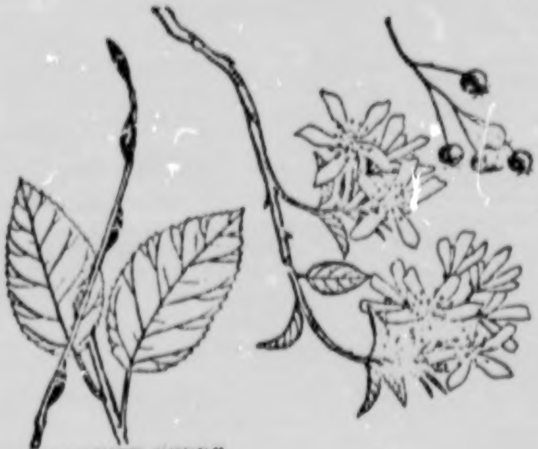
Form # 195

TREE DATA SHEET

1. NAME: Flowering Dogwood / Cornus florida / (1-12) Cornus = L., Horn because of hardness of wood. Florida = flowery
2. CLIMATE: varied from Mass. to Florida, west to Michigan, Missouri and eastern Texas (11)
3. GROWTH RATE:
4. LANDSCAPE PLACEMENT: thrives in open fields (3)
5. SOIL: reaches its splendor in springtime in dry acid, Ozark soils (9), prefers well-drained, fertile soil but will grow in a variety of soils when transplanted (3).
6. TOPOGRAPHY:
7. BARK: red brown to reddish gray, broken by fissures into small blocks like alligator hide (2,3,4,5,7,11,12)
8. BUD: the opposite leaf buds are con-shaped and the flower buds compressed and globe-shaped (9). Buds are covered by 2 valve-like scales.
9. FLOWER: greenish white or yellowish, small, in flat-topped clusters, four showy white bracts underneath before the leaves mature (2), cross-shaped and cream white with a yellow center, tips of the petals or bracts are notched and tinted with a rust color (3,4,5,6,7,12)
10. FRUIT: egg-shaped drupe, 1/2 - 3/5" long, coat red, flesh yellowish, stone grooved, usually in clusters of 2 - 5, persist after the leaves fall (2,3,4,5,6,7) Birds like to eat hews.
11. LEAF: [✓ simple]/compound, alternate/[✓ opposite], 3"-5" long, clustered toward tips of twigs, margins smooth or wavy, veins prominent and curved like a bow. Foilage bright red in autumn (2), delay their appearance until the flowers fade, then extend to their fullest dimension of 3-6" long and approximately 1/2 that wide, green upper surface, grey-green lower, ridge-shaped base, typical parallel curving vein (3,4,5,6,7,9,12).
12. SEED: same as fruit
13. TWIG: red tinged with green, often with a bluish white powdery coating, marked with rings, tips curved upward, smooth (2,6,12)
14. WOOD: hard, close-grained (9), extremely heavy, strong (3,5,7,11) golf club heads, tool handles
15. MATURITY: seldom exceeds 30 feet with a diameter averaging 6-8", commonly 12-20' in height (6)
16. HOST TO:
17. LARGEST KNOWN:
18. DISEASE POTENTIAL:
19. CURRENT USE: planted for ornamental use, textile weaving shuttles, food for wild turkeys and other forest birds, golf club heads, wedges, pulleys, knitting needles, sled runners (9,11,12)
20. HISTORICAL USE: State tree of Missouri, Virginia and North Carolina; adopted in Mo. in 1955; in Virginia in 1956. Hay forks, machinery bearings (3). Indians used roots as a bitter tonic for treating fever and making dye, ...remedy for malaria (3)
21. LEGEND: name was Dogwood from the word dag which means dagger, skewer or sharp pointed instrument. Butchers once made skewers or daggers of dogwood because the characteristics of the wood adapted it so well to that use, and, in time, the name was changed by usage to dogwood (9). Another theory is that in England, mangy dogs were washed in a brew made from dogwood bark - hence, the name dogwood (3)
22. ILLUSTRATION: 4, p. 21

Form # 196

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION


SERVICE BERRY

SERVICE BERRY,
SHADBUSH JUNEBERRY

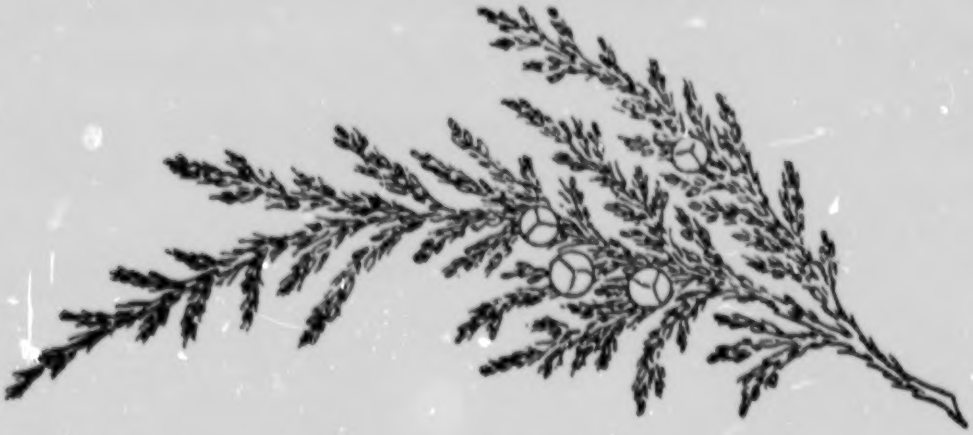
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form# 197

TREE DATA SHEET

1. NAME: Serviceberry /Amelanchier arborea/ (1-12) / Shadbush, Juneberry/
2. CLIMATE:
3. GROWTH RATE:
4. LANDSCAPE PLACEMENT: grows best on upland soils at the edge of the forest (12).
5. SOIL: grows best on rich upland soil, but has been known to do well on dry and stony soils (12).
6. TOPOGRAPHY:
7. BARK: light gray, smooth, when young; breaking into scaly ridges when older (12).
8. BUD: long and slender, pointed (12).
9. FLOWER: appear before the leaves in early spring; white, in drooping clusters; each flower with 5 strap-like petals 1/2" long or longer (12).
10. FRUIT: Reddish-purple berry, sweet and juicy, 1/3-1/2 " in diameter, edible, ripening in June. Sought after by many species of wild life (12).
11. LEAF: [✓ simple]/compound; [✓ alternate]/compound, slender, stalked, oval in shape, 2-4" long, finely toothed, hairy when young, smooth with silky hairs along the veins; later base of leaf is rounded or slightly indented near the stalk (12); heart-shaped or rounded at the base, finely serrate, and ovate or ovate-oblong in outline (6).
12. SEED: same as the fruit.
13. TWIG: smooth and light gray, bitter tasting (12).
14. WOOD: Heavy, strong, close grained. May be used for tool handles
15. MATURITY: small, seldom over 30' high or 8" in diameter (12).
16. HOST TO:
17. LARGEST KNOWN: Serviceberry Allegheny (Amelanchier laevis) (1970), 6',2", circumference at 4-1/2', 60' in height, Silers Bald, N. C.; John R. Vosburgh, Washington D. C.
18. DISEASE POTENTIAL:
19. CURRENT USE: ornamental
20. HISTORICAL USE:
21. LEGEND:
22. ILLUSTRATION 5, p. 46

FORM#198



RED CEDAR

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE DATA SHEET

Form # 199

1. NAME: Cedar, Eastern Red/Juniperus virginiana/ (1-12)✓

2. CLIMATE:

3. GROWTH RATE: irregular in growth (5)

4. LANDSCAPE PLACEMENT: thrives on hills where few other trees are found (5)

5. SOIL: grows on a great variety of soils (5)

6. TOPOGRAPHY:

7. BARK: very thin, reddish-brown, peeling off in long, shred-like strips (5,6,7,8)

8. BUD: winter buds minute, covered by overlapping scale-like leaves (8)

9. FLOWER: 2 kinds-appearing in February or March, are at the ends of the twigs on separate trees. The staminate trees assume a golden color from the small catkins, which, when shaken, shed clouds of yellow pollen (5).

10. FRUIT: ripens the first season, is pale blue with a white bloom, 1/4" in diameter, berry-like with sweet flesh, berry-like cone (6,8).

11. LEAF: 2 kinds, often both kinds being found on the same tree. The common kind is dark green, minute and scale-lie, clasping the stem in 4 ranks, so that the stems appear swuare. The other kind, often appearing in young growth or vigorous shoots, is oval-shaped, quite sharp pointed, spreading and whitened beneath (5,7);1/16 of an inch long; alternate; opposite (6,7,11), remain on tree 5-6 years, growing hard and woody the 3rd season.

12. SEED: from 1-2, wingless, brown in color, covered with a thin, sweet flesh with resinous flavor (8).

13. TWIG: generally 4 sided on mature trees, green in color from the covering of minute leaves, not flattened or arranged in fan-shaped clusters, becoming reddish-brown after fall of the leaves (8).

14. WOOD: heartwood is distinctly red, and the sapwood white, this color combination making very striking effects when finished for cedar chests, closets and interior woodword. Aromatic, soft , strong, even textured, durable in contact with the soil (5,6,7,8).
Cedarvil is distilled from wood and leaves; used on household preparations

15. MATURITY: usually 40'-50' high (6,7).

16. HOST TO:

17. LARGEST KNOWN:

18. DISEASE POTENTIAL:

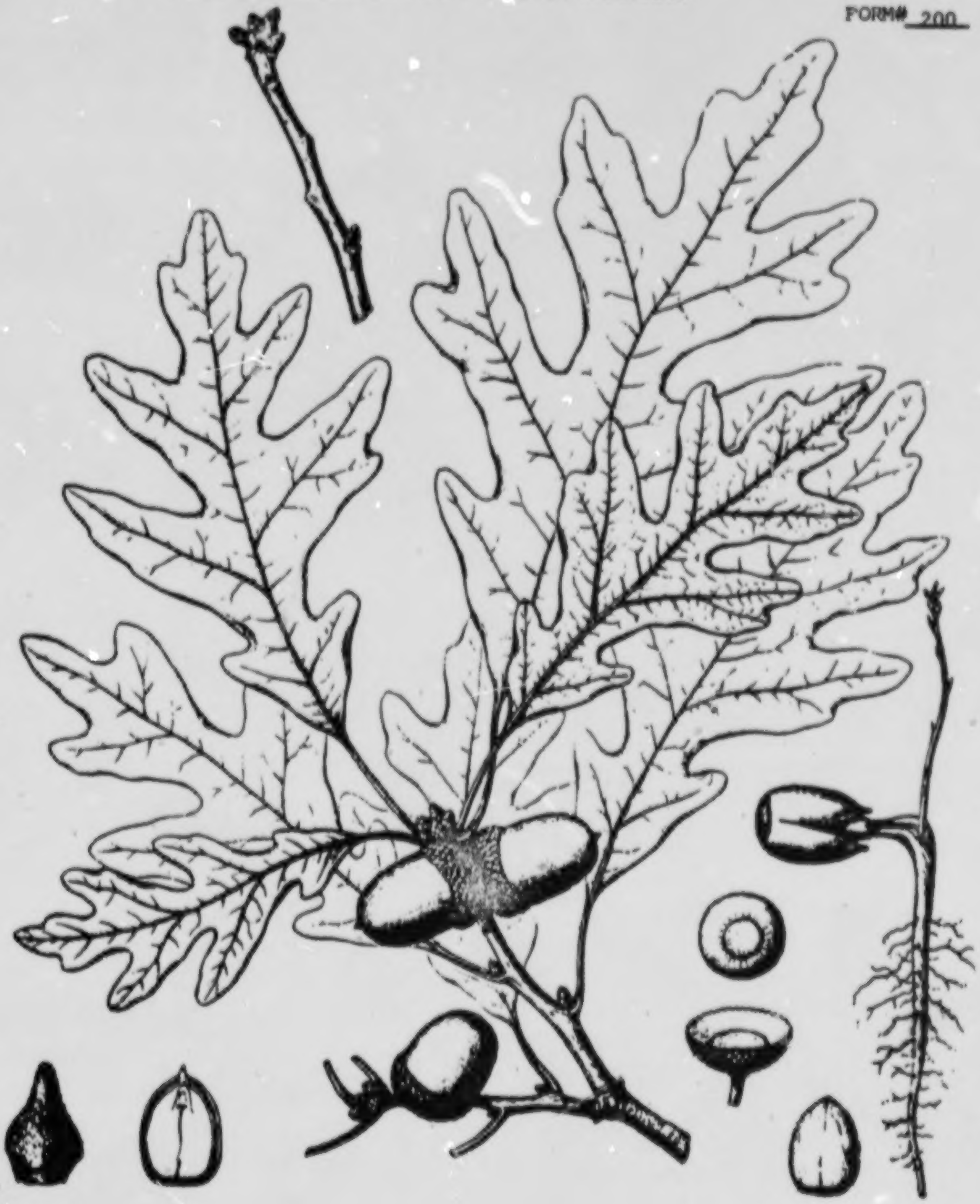
19. CURRENT USE: winter food for birds, cedar chests, closets and interior woodwork, posts, poles, rustic wood, lead pencils (5,6,7,11), cigar boxes, canoes (11).

20. HISTORICAL USE:

21. LEGEND:

22. ILLUSTRATION: 15, p. 8

FORM# 200



WHITE OAK

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE DATA SHEET

Form# 201

1. **NAME:** White Oak/ Quercus Alba linnaeus/ (5,8,11,12) Alba = white

2. **CLIMATE:** it can be found under a diversity of envioronmental conditions, extending to some dry uplands (12), eastern half of U. S. (5).

3. **GROWTH RATE:** slow (5).

4. **LANDSCAPE PLACEMENT:** sandy land, gravelly ridge and moist bottomlands, but makes best growth on rich rather heavy upland soil (6).

5. **SOIL:** often grows in almost pure strands on loamy, well drained soils in protected coves and on cool slopes (12)

6. **TOPGRAPHY:**

7. **BARK:** light/ ash gray rough with long loose scales; becoming blocky on very old trees (2,3,6,12), broken by shallow furrows into long, irregular, thin scales, which readily flake off, on old trunks furrows frequently become deep (2,3,4,5,7,8,9)

8. **BUD:** winter buds clustered at end of twigs, blunt, reddish brown in color, 1/8 inch long (4,8,10)

9. **FLOWER:** Male and female flowers borne separately or the same time. Male flowers in hairy catkins, the female flowers inconspicuous, borne at the base of the new leaves (5,12) come out in May when the leaves are half grown (6)

10. **FRUIT:** Acorn - 3/4" long, the cup short stalked or unstalked covered with werty scales, enclosing the nut about 1/4 of its length, maturing in one season. These acorns germinate soon after they fall to the ground in autumn. Few acorns remain on the ground by springtime since the nuts of white oak are choice food for squirrels and other animals. It is largely because of the fact that the majority of the white oak reproduction comes from sprouts rather than from seed (5) (6,7,9,12), mature in one year (7,8) falling in Sept., frequently starts sprouting in late autumn (8), maturing in Sept. of the first year (6)

11. **LEAF:** simple/ compound, alternate/ opposite, on a relatively short stalk, 4 to 9 inches long, somewhat wider toward the top end of the leaf; with 7 to 9 smooth-edged lobes smooth above, smooth and whitened beneath, generally deeply cleft toward midrib, dark green above, pale below. (2,3,4,5,6,7,9,12)

12. **SEED:** same as fruit (12)

13. **TWIG:** slender; grenish-red, early with a white frost-like bloom, becoming reddish-brown by the end of the growing season, buds globe-shaped, clustered around the tip of the branch (2,12), medium in thickness, sometimes covered with a bloom, scales are without hair (6), pith is star shaped.

14. **WOOD:** hard, heavy, strong and durable (3,6,7,8,9,11), close-grained, light brown (5)

15. **MATURITY:** commonly reaches a height of 60-100 feet, diameter of 2-3' (5,6,9), may live to be 800 years, one of longest living trees (9)

16. **HOST TO:**

17. **LARGEST KNOWN:** Hgt.95'- circumference at 4-1/2'; crown spread 110' - State of Maryland (6)

18. **DISEASE POTENTIAL:**

19. **CURRENT USE:** most important use of white oak in Mo. is in the cooperage industry, for making barrels for distilleries (9,12); also furniture, flooring, implements, ties and general construction (8), food for hogs (leaves) (5)

20. **HISTORICAL USE:** State tree of Connecticut, adopted in 1947; Maryland adopted in 1941. "Old Ironsides" was made of white oak (9), indians and early settlers often used white oak acorns for food after boiling and soaking out the acid (3).
State tree of West Virginia

21. **LEGEND:**

22. **ILLUSTRATION:** 14, plate 1

Repeat of Form # 190 POST OAK

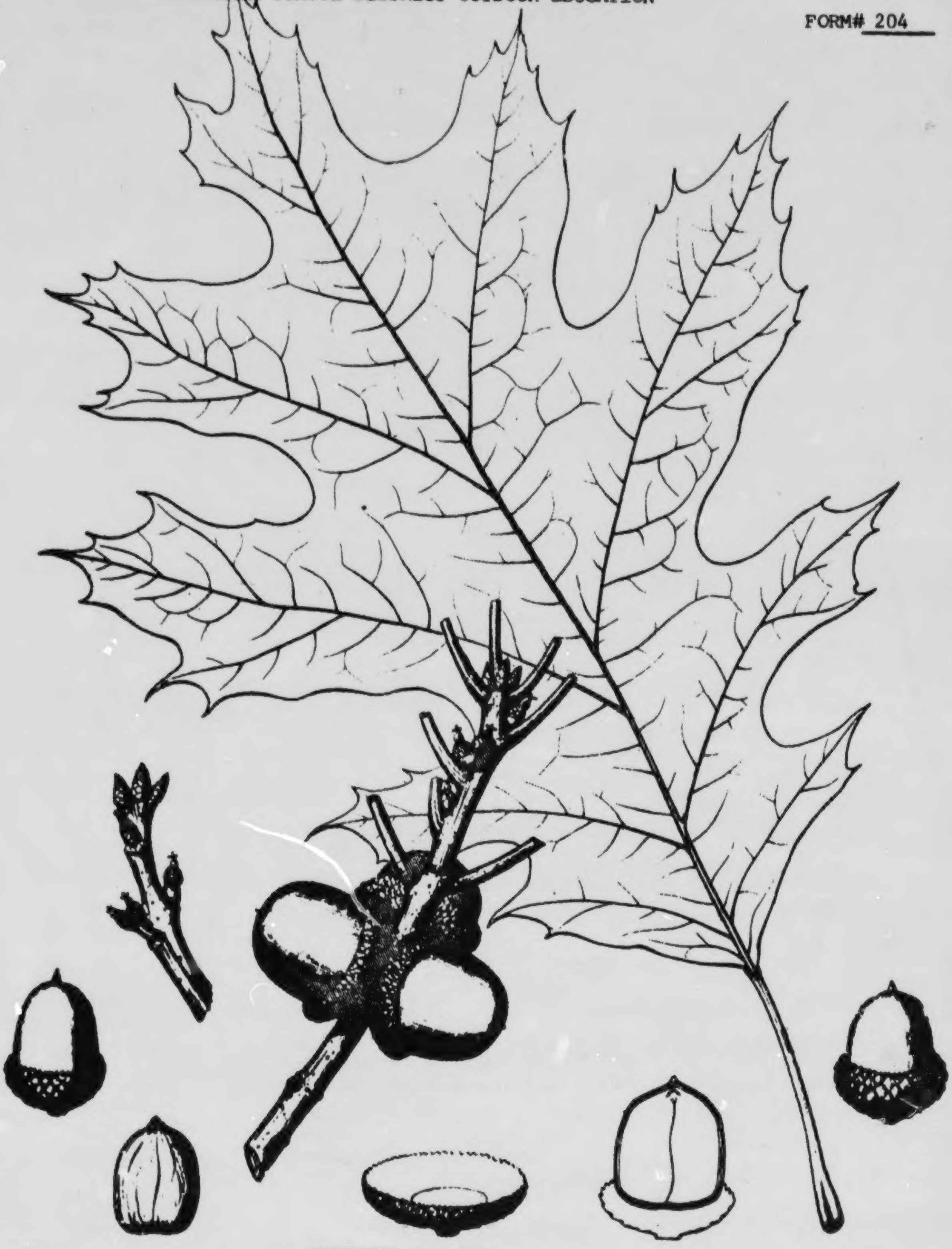
See picture Form # 190

Form # 203

Repeat of Form # 191 POST OAK

See data Form # 191

FORM# 204



NORTHERN RED OAK

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form# 205

TREE DATA SHEET

1. NAME: Northern Red Oak/querus rubra/ querus = ancient Latin, probably Celtic meaning "beautiful"

2. CLIMATE:

3. GROWTH RATE: rapid

4. LANDSCAPE PLACEMENT: grows in company with other oaks, sugar, maple, white pine and hickories

5. SOIL: deep, moist, well drained, medium texture

6. TOPOGRAPHY:

7. BARK: dark brown or black; smooth on young trees, rough and shallowly fissured with broad smooth streaks on the upper trunk on vigorous, healthy trees; deeply furrowed on old trunks. Inner bark is light red. 1/2 to 1/4" thick on mature tree.

8. BUD: reddish, fringed with hair, winter buds small, light reddish -brown and smooth.

9. FLOWER: male and female flowers borne separately on the same tree; male flowers in hairy, yellow catkins, 4-5" long, female flowers borned 2 or 3 on short stems,

10. FRUIT: an acorn 3/4" to 1-3/4" long, oblong, somewhat hairy at the cup end; cup saucer shaped, encasing 1/4 - 1/3 of the nut. Maturing second year, blunt topped, flat at base, has largest acorns of all oaks.

11. LEAF: [✓ simple]/compound: [✓ alternate]/opposite; 5-8" long, roughly egg shaped in outline with the broadest part above the middle; with 7-11 upward-pointing, bristletipped lobes, the indentations between the lobes extending half-way to the central vein. Smooth and yellow-green above, smooth except for occasional tufts of hair in the intersections of the veins beneath, paler below, 4-6" wide, often turning brilliant red after frost.

12. SEED: same as fruit

13. TWIG: slender, reddish-brown, slightly hairy at first, becoming smooth; star-shaped pity.

14. WOOD: hard, strong, coarse-grained with light, reddish-brown heartwood and thin, lighter colored sapwood.

15. MATURITY: usually attains a height of about 70' and diameter of 2-3', but is sometimes much larger. Grows more prolific than all other oaks.

16. HOST TO:

17: LARGEST KNOWN: circum. at 4-1/2' - 26'4", total height - 78' crown spread -104', state - Connecticut

18. DISEASE POTENTIAL: general freedom from insects and fungus attacks

19. CURRENT USE: crossties, rough lumber, post fuel, flooring, and certain types of barrels, shade tree where space is not limited, cooperage interior finish, construction furniture, squirrel, raccoon, quail, deer, ruffed grouse, wood duck, black duck, gadwall and green winged teal eat acorns.

20. HISTORICAL USE:

21. LEGEND:

22. ILLUSTRATION: 14, plate 11

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 206

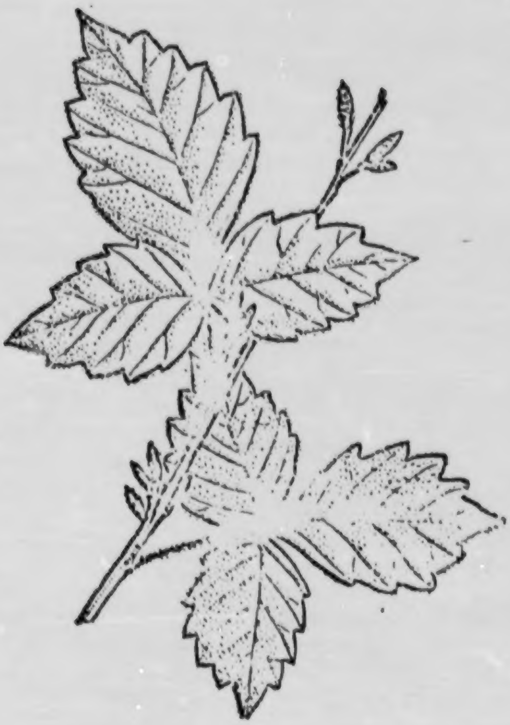
Repeat of Form # 194 **FLOWERING DOGWOOD**

See picture Form # 194

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 207

Repeat of Form # 195 FLOWERING DOGWOOD

See data Form # 195



FRAGRANT SUMAC

Form # 209

TREE DATA SHEET

NAME: FRAGRANT SUMAC (Rhus aromatica)

OTHER NAMES: none.

FLOWER: red fuzzy berries.

LEAF: 3 divided leaves - and twigs pleasantly aromatic.

BLOOMING TIME: from May on.

HABITAT: in open woods.

UNUSUAL FACTS: low shrub, good for home planting.

SOURCE: 8, page 203

ILLUSTRATION: 15, page 163

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 210

Repeat of Form # 192 BLACKJACK OAK

See picture Form # 192

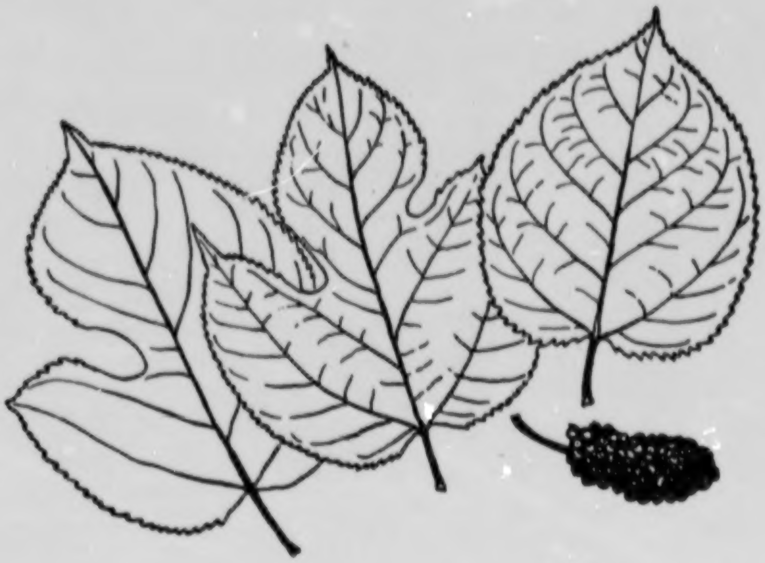
Form # 211

Repeat of Form # 193 BLACKJACK OAK

See data Form # 193

Form # 212

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION



RED MULBERRY

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 213

TREE DATA SHEET

1. NAME: Red Mulberry/ Morus rubra / (1-12)

2. CLIMATE:

3. GROWTH RATE: Medium sized tree (12)

4. LANDSCAPE PLACEMENT: Usually grows in narrow valleys and on lower north and east slopes (9).

5. SOIL: Can be found on rich, well-drained soil

6. TOPOGRAPHY:

7. BARK: Smooth and gray at first; becoming ridged and scaly, brown when mature then dark reddish-brown, peeling in long narrow flakes (5, 9, 12, 7)

8. BUD: With several two-toned green and brown scales, pointed. (12,9)

9. FLOWER: Male and female flowers on separate trees; male flowers in catkins; female flowers on hanging spikes, vase-shaped (12), are of two kinds, on the same or different tree. (5)

10. FRUIT: A multiple similar to the blackberry; red while maturing, purple when ripe; sweet, juicy (4,5,9,11,12), edible; a stalk extends through it centrally (5), inch long.

11. LEAF: Simple/Compound, alternate/ opposite; large, 3-5 inches long, 2-4 inches wide, heart shaped, variously lobed or unlobed; edges of the leaves coarsely toothed; blue-green and rough above, paler and hairy beneath. (4,5,7,9,11,12)

12. SEED: Same as fruit (1-12).

13. TWIG: Slender to moderately stout, zigzag; brown, exclude a milky sap when broken. (9,12)

14. WOOD: Yellow (4), rather light, soft, not strong, very durable in contact with the soil. (5,9,10,11)

15. MATURITY: Medium sized, rarely attains a height of more than 50 feet in height and a diameter of more than 18 inches. (5,7,9,11,12)

16. HOST TO:

17. LARGEST KNOWN: Species and year reported - Mulberry, red, morus rubra, 1969; circumference at 4-1/2 feet - 17' 6"; height - 70'; spread - 75'; location of tree and nominator - Gettysburg College Campus, Pa., C. A. Hanson, Gettysburg, Pa., C. Victor Funk, Fayetteville, Pa.

18. DISEASE POTENTIAL:

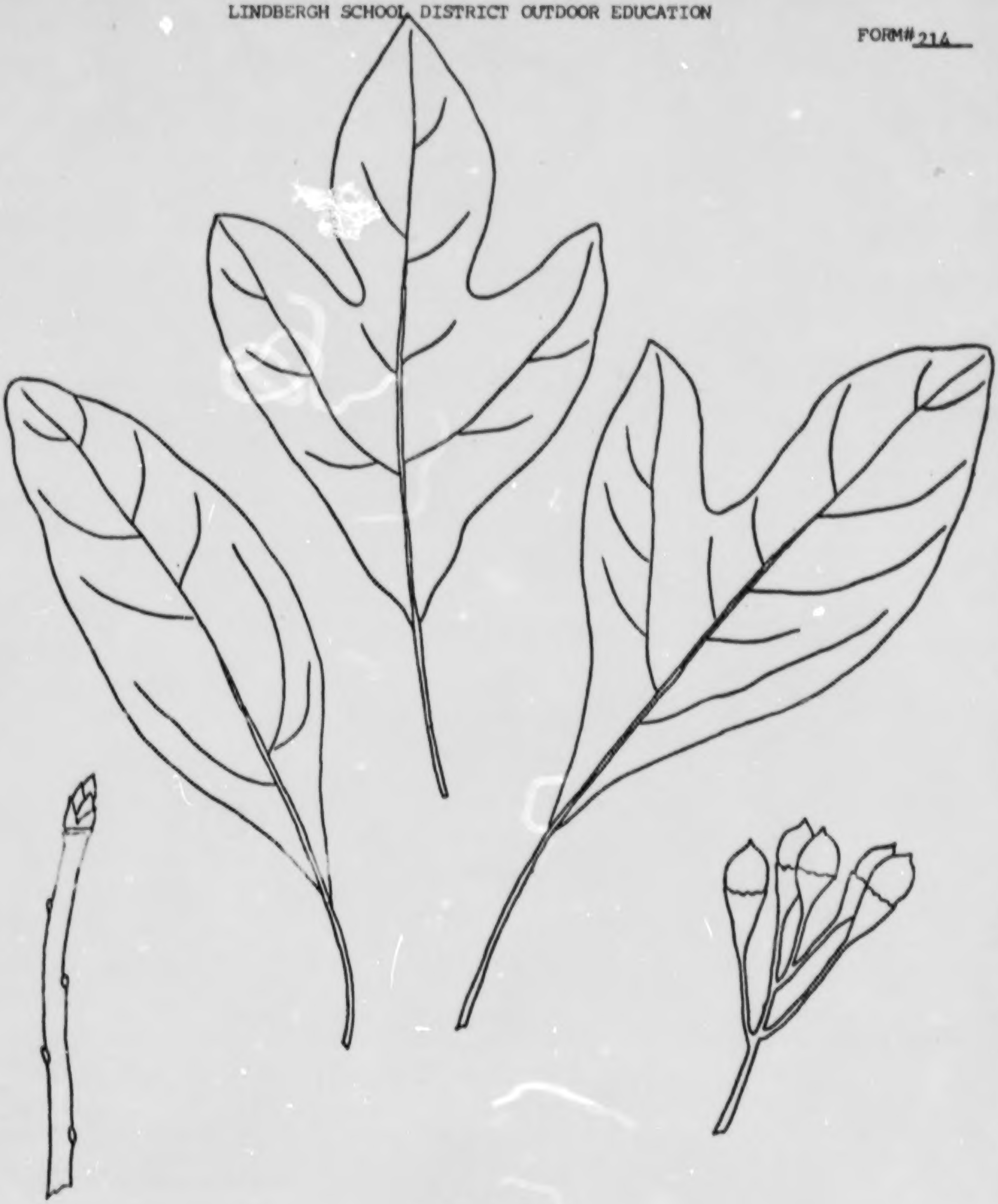
19. CURRENT USE: Little use is made of the wood since merchantable-sized logs are scarce; makes good posts; rarely used as an ornamental food for squirrel, wild turkey, quail, prairie chicken, ruffed grouse, hog, raccoon (5,7,10,12), opossum, fox, skunk, yellow billed cuckoo, woodpeckers, kingbird, mockingbird, warbler, orioles, scarlet tanager, finches (7,9), makes good shade tree beside chicken yard food, when it drops fattening food all summer that poultry love (10). Fruits, jams wines and even ink (9).

20. HISTORICL USE: When an attempt was made to produce silk competitively with oriental sources, the leaves of red mulberry were used initially as a food supply for silkworms. However, they never proved satisfactory (12). Early explorers noted Choctaw squaws wearing capes woven from pounded red mulberry bark. Fruits were also an important food source for the Indians. Chinese made the first paper from trees, using the fibers of the inner bark of mulberry (9).

21. LEGEND:

22. ILLUSTRATION: 4, p. 39

FORM#214



SASSAFRAS

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 215

TREE DATA SHEET

1. NAME: Sassafras/Sassafras and varifolium albidum/ (1-12)

2. CLIMATE: found from Maine west to Michigan, Kansas, south the Florida and Texas.

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT: field, hills (1-12)

5. SOIL: well-drained, rich, deep, moist soil is preferred, but it often invades old fields (3,9,12) and does well on sandy or stony soil. (3)

6. TOPOGRAPHY:

7. BARK: gray to dark brown, thick, very deeply furrowed, fragrant when cut; bark of the roots yields an oil (2,3,5,6,7,8,12)

8. BUD: egg-shaped, dull pointed (8,12) winter buds - terminal buds present, from 1/2 to 3/5" long, greenish in color, lateral buds much smaller (2,8,)

9. FLOWER: male and female flowers borne on separate trees, both flowers yellowish-green, in clusters at the ends of the branches (5,6,10,12)

10. FRUIT: cluster of several dark blue leaves, seated on thickened red fleshy stalks, (2,7,8,9,12), oblong, dark blue or black, lustrou berry, containing one seed and surrounded at the base by what appears to be a small orange-red or scarlet cup at the end of a scarlet stalk (3,5) yellow flowers appear before the leaves unfold (2)

11. LEAF: Simple/ compound, alternate/opposite; variable in shape and in degree of lobing with 0, 2 or 3 lobes present, lobes pointed base down, down to a point at the stalk, edges smooth, smoothness prominently above, smooth with a few hairs beneath. The three types of leaves are found on a single tree although the unlobed are more predominent on old trees. (2,3,4,5,6,7,8,9,10,11,12)

12. SEED: enclosed in fruit

13. TWIG: moderately stout; fragrant; greenish at first, turning yellow with dark patches later, these fragrant twigs produce a mucilaginous slime in the mouth when chewed. (2,8,10,12)

14. WOOD: very durable (12), soft, brittle, singed with red (8,11), coarse-grained, aromatic (3,5,6,7,8) Tea is made from bark. Wood also used for fence posts.

15. MATURITY - on good sites (rich, moist soil) it sometimes becomes as large as 2' in diameter and more than 60' tall. (12)

16. HOST TO:

17. LARGEST KNOWN:

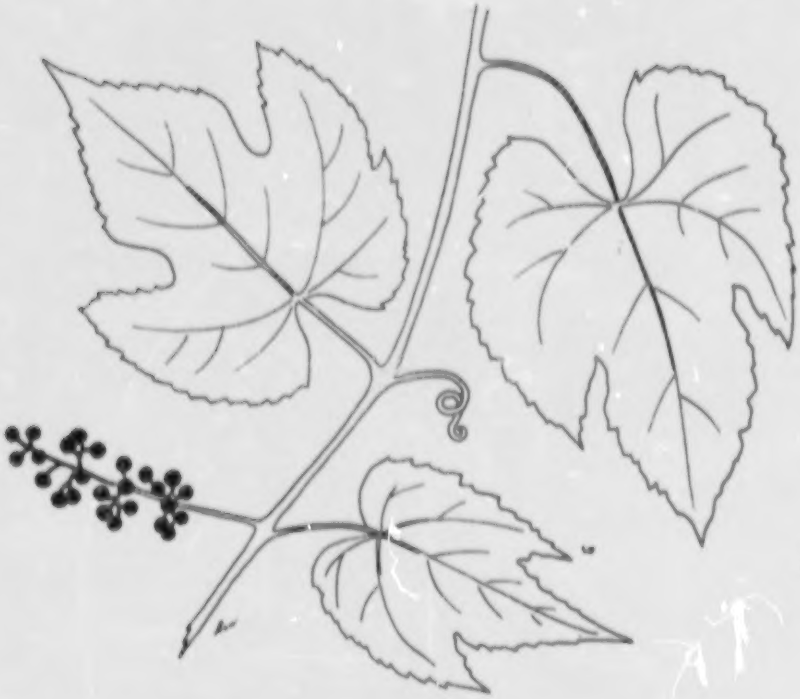
18. DISEASE POTENTIAL:

19. CURRENT USE: oil is used in soap, perfumes, and in flavoring, drugs and medicines; fence posts and small boat construction (2,3,5,6,8,10,11,12), flavoring root beer, candies and medicines and also tea (4,5,9,10); food for squirrels, quail and wild turkey (9), paneling (7,9).

20. HISTORICAL USE: oil which, when brewed into a tea, is reported to be blood-thinning tonic. Undoubtedly, it is still administered each spring to children in a few rural areas (12). Early settlers dyed their homespuns with dye made from the bark. Indians flavored food with it. Raleigh colonists shipped roots to England for medicinal purposes (11)

21. LEGEND: oil is supposed to be a blood-thinning tonic (12). Indians called this the Green Stick because of its smooth bright green twigs (3).

22. ILLUSTRATION: 15, p. 28



—Pigeon grape, *Vitis cinerea*. Stem with fruit.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 217

TREE DATA SHEET

1. NAME: WILD GRAPE VINE /Vitis spp. (Vitaceae)/

2. CLIMATE: widely distributed.

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT: upland woods, streambanks, and bottom lands.

5. SOIL:

6. TOPOGRAPHY:

7. BARK:

8. BUD:

9. FLOWER: small, greenish, fragrant, forming clusters in spring.

10. FRUIT: dark blue or black, several-seeded.

11. LEAF: simple, alternate, mostly cordate or rounded, long-petioled, variously lobed, with coarsely toothed margins.

12. SEED:

13. TWIG:

14. WOOD:

15. MATURITY:

16. HOST TO:

17. LARGEST KNOWN:

18. DISEASE POTENTIAL:

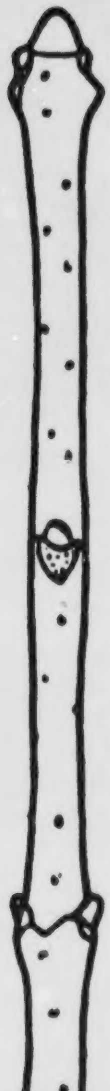
19. CURRENT USE: Deer readily--and often excessively eat Vitis during spring and summer. Over-browsing during summer has been described as an indication of deer overpopulation. Deer also eat the fruits during fall and winter. Grapes make up nearly 10 percent by volume of the food of ruffed grouse, are eaten every month, and rank as the second to fourth most important grouse food in Missouri, depending on their abundance. Grapes are very important to raccoons and wood ducks. Wild turkeys eat grapes throughout the year. Quail and to a lesser extent red foxes also eat grapes, as do many nongame species. When ripe, and especially after a frost or two, these gruits are tasty to humans. They also are used to make wine, preserves, and jellies.

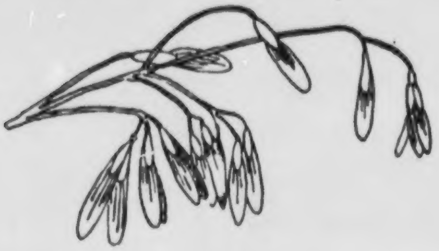
20. HISTORICAL USE:

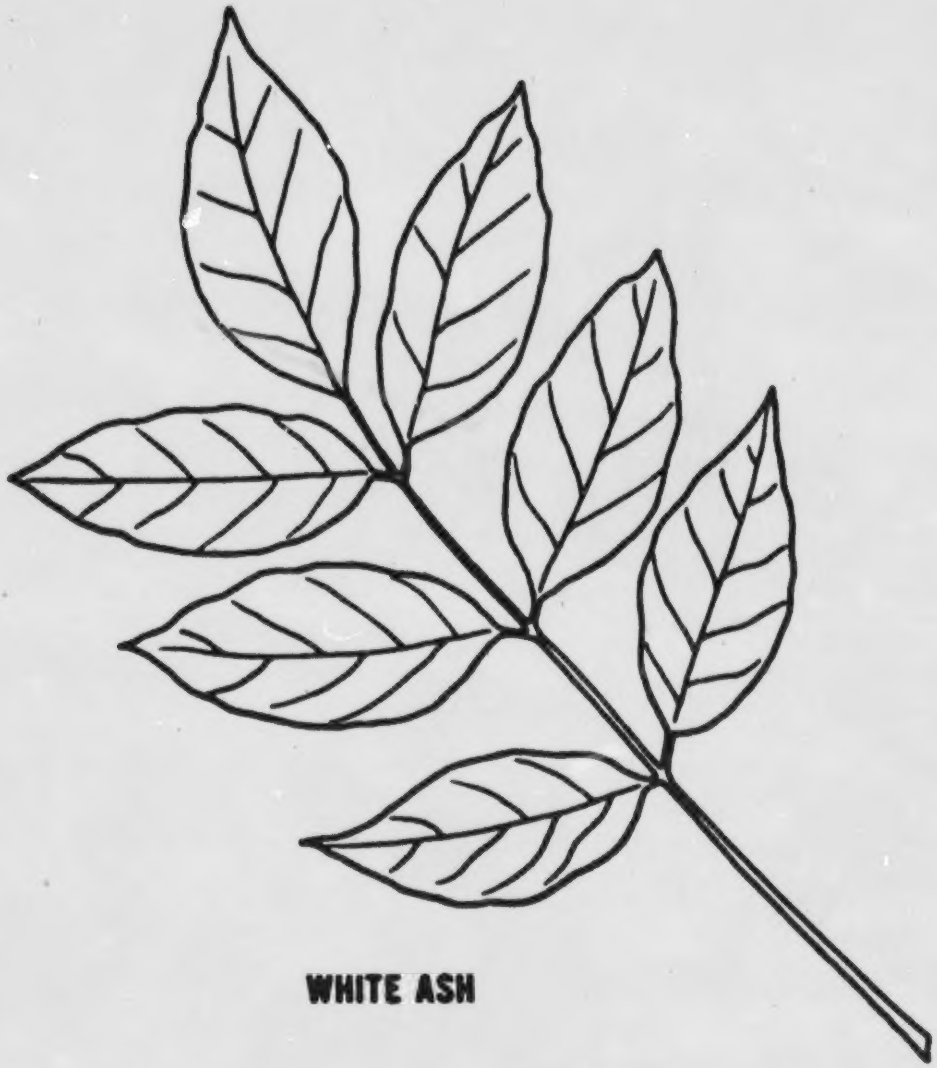
21. LEGEND: One of AEsop's fables (Jacobs #31), in which a hungry fox, after trying in vain to reach some grapes hanging on a vine, walks away saying to himself that they were sour anyway. Moral: It is easy to belittle what you cannot ge The aptness of this fable has caused the expression "sour grapes" to become a by-word reference in colloquial English for anyone trying to rationalize a failure by belittling the end he strove for. The most modern retelling of the fable is the cryptic "The Mookse and The Gripes" episode in James Joyce's Finnegan's Wake (1939), p. 152 ff.

22. ILLUSTRATION: 16, p. 222

FORM# 218







WHITE ASH

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE DATA SHEET

Form# 219

1. NAME: White ash/fraxinus americana/ (1-12)

2. CLIMATE: moise (3,5,7,8,9,12)

3. GROWTH RATE: these trees love light; will not grow rapidly under shaded conditions (9).

4. LANDSCAPE PLACEMENT: deep, moist soild, especially bordering major rivers and streams, well-drained land (3,5,8,9,12)

5. SOIL:

6. TOPOGRAPHY:

7. BARK: gray; many close ridges crossing to form a diamond pattern (2,3,4,5,6,7,8,9,12) dark, almost black rough and broken because the outside doesn't stretch, but burst as the trunk expands (3,7,10).

8. BUD: blunt (2,8,12), winter buds plump, dark brown or nearly black, terminal bud 1/5" long, larger than lateral buds, last pair of lateral buds almost on level with terminal bud (8), exactly opposite, round or dome-shaped (7).

9. •FLOWER: male and female flowers on separate trees; male flowers in dense clusters, purple turning yellow; female flowers in less-dense clusters, vase shaped, purple (5,10,12)

10. FRUIT: in many-seeded, persistent clusters;(12); winged seed, from 1-2 inches long, broadly paddle-shaped, borne in long, open, drooping dusters, ripen in Sept. after not dropping off till early winter (8,2). Single samara occurring in clusters (6,7)

11. LEAF: alternate/opposite, borne simple/compound, usually with 7 egg-shaped leaflets, 4" long, short stalked; edges of the leaves smooth or remotely toothed dark gree above, paler beneath (2,3,6,7,8,9,10,11,12), 8-15" long multiple (3,7,8,10). turns yellow or purplish in autumn

12. SEED: winged at the tip, paddle-shaped (5,10,11,12) borne in clusters on the twig (4,9), spread by wind, water or both (9), cigar shaped and has terminal wing (7).

13. TWIG: stout, with large, pale lenticels (2,8,12), smooth, shining, brittle, flattened at leaf bases(node)(7,8) at tip of twig there are always three buds, the large, brown pyramidal terminal and 2 small lateral buds (9).

14. WOOD: varies in quality from one area to another. It is usually difficult to break even under great strain, yet it is comparatively light (3,12), heavy, hard, strong, close-grained and tough (3,6,8,9).

15. MATURITY: often reaches a height of 100 feet (12). In Mo. seldom exceeds 100 feet in height and 2-1/2 in diameter (9).

16. HOST TO:

17. LARGEST KNOWN: in Glen Mills, PA Circumference 22'3"; Height 80'; Spread 82'

18. DISEASE POTENTIAL:

19. CURRENT USE: handles for striking tools, boat oars, sporting goods (particularly baseball bats), furniture and interior finishes (5,4,2,3,7,8,9,11,12) because it is hard and has good form. It has been widely planted as an ornamental tree (9).

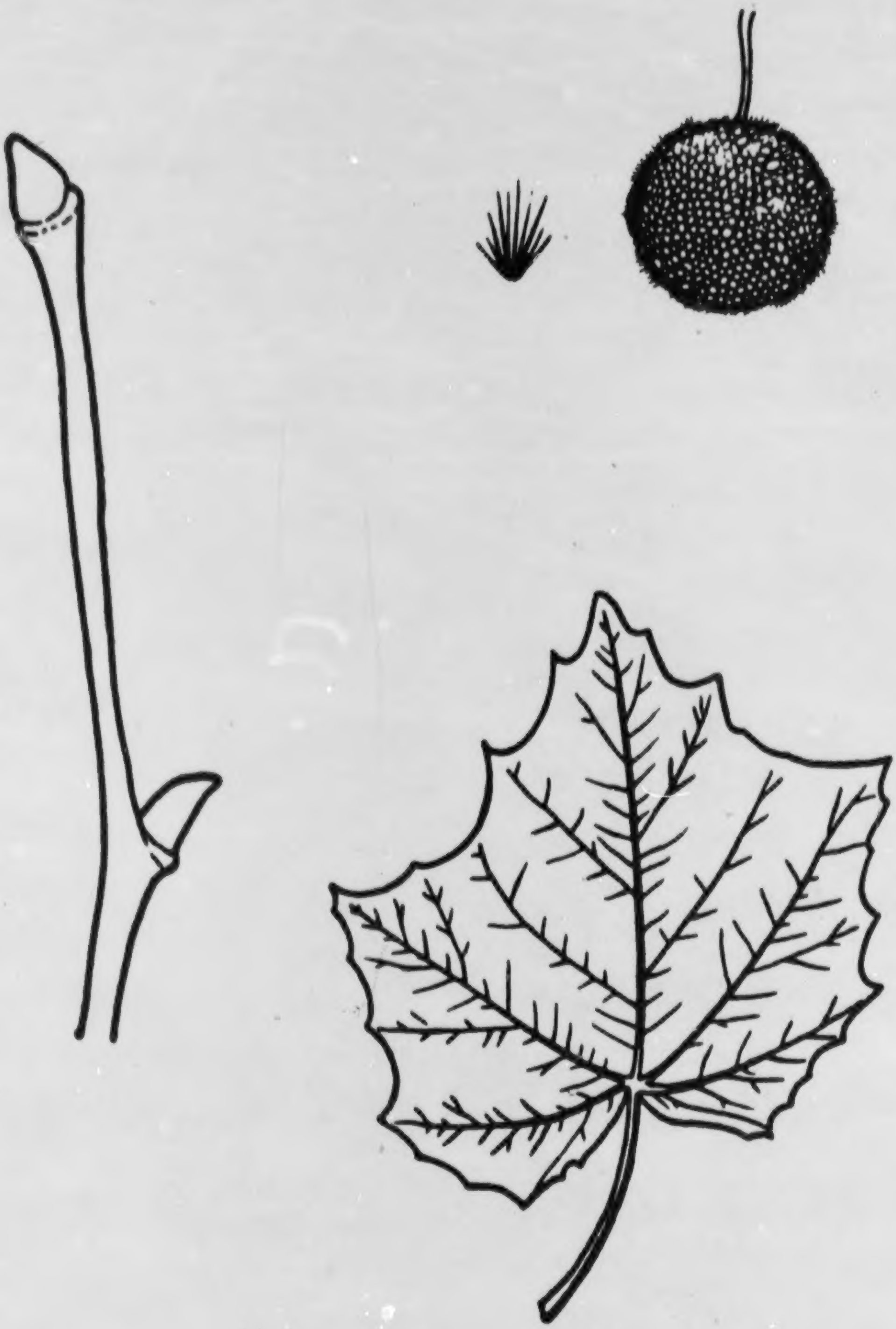
20. HISTORICAL USE: N. American Indians used ash for bows and canoe paddles. (11) By time of Ovid, Latin poet (died 16 A.D.) the shafts of spears and javelins were made of ash.

21. LEGEND: "no serpent will rest beneath its shade", "ash trees draw lightening" - neither are true.

22. ILLUSTRATION· 13, 23V
4, p. 10

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 220



AMERICAN SYCAMORE

Form # 221

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

TREE DATA SHEET

1. NAME: American Sycamore, buttonwood. plane-tree/Platanus occidentalis/ (1-12)

2. CLIMATE: tolerant of wet soil conditions. (12)

3. GROWTH RATE: one of most rapidly growing trees, considered the largest hardwood tree in N. America, largest single bladed leaf native to the American forest. (3, 6, 12)

4. LANDSCAPE PLACEMENT: commonly found in wide groves on rich river bottomlands, and around streams (12)

5. SOIL: rich, moist (1-12)

6. TOPOGRAPHY:

7. BARK: dark brown or olive brown near base, upper branches nearly white, greenish gray on young trunks and limbs, bark becomes thick, dark brown with deep furrows around base of old trees, outer bark flakes yearly. (5, 7, 9)

8. BUD: cone-shaped, covered by a single scale, covered during growing season by enlarged base of the leaf stalk. (4 12)

9. FLOWER: male and female borne separately on same tree, male=short-stalked clusters-dark red; female=long-stalked ball-like clusters-green and red, very small (9).

10. FRUIT: button fruit, 1" in diameter, ball-like multiple of many seeds-brown when mature, breaks up in spring. (5, 12)

11. LEAF: [✓ simple]/compound; [✓ alternate]/opposite, 3 to 5 lobed, 4-10 inches, coarse teeth, yellow green above, paler beneath, fuzz along the veins. (4, 5, 12)

12. SEED: simple with a plume of hair at the base, fall off during the spring. Requires wet seedbed for germination. (9)

13. TWIG: moderately stout green and hairy at first, brownish later zigzag. (8, 9)

14. WOOD: close-grained, tough, almost impossible to split, tendency to warp, decays quickly when exposed to weather. (8, 11, 12)

15. MATURITY: may live to be 500-600 years old. In maturity, it occassionally attains a height of 140-170 feet and diameter of 10'-11', often forks into several large secondary trunks.

16. HOST TO: squirrels, raccoons and birds. (12)

17. LARGEST KNOWN: Arizona 1969 (Platanus wrightii) - Circumference at 4-1/2 feet-20'11", height-90', spread 98'. (1)

18. DISEASE POTENTIAL: susceptible to anthacnose (fungus disease). (11)

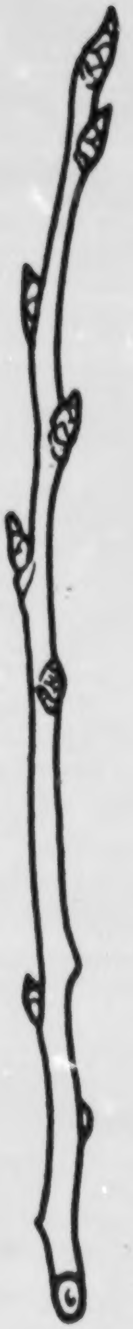
19. CURRENT USE: butcher blocks, tobacco boxes, furniture, crates and barrels. shade trees, homes for squirrels, raccoons and birds. (5. 7, 11, 12)

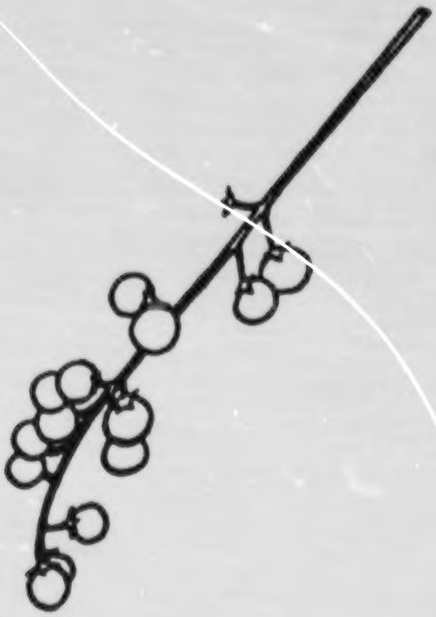
20. HISTORICAL USE:

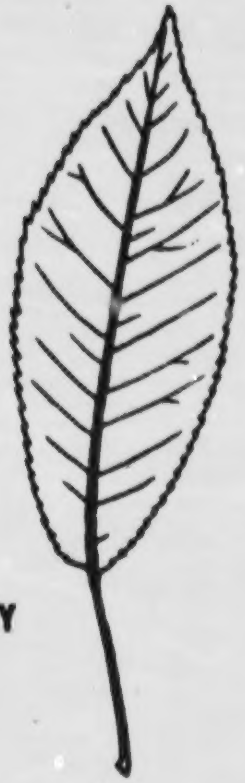
21. LEGEND:

22. ILLUSTRATION: 13, 23M

FORM# 222







BLACK CHERRY

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 223

TREE DATA SHEET

1. NAME: Black Cherry/Prunus serotina/ (1-12) /prunus = (in Pling) a plum tree/serotina = late/

2. CLIMATE:

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT: most common on river deposited soils (12).

5. SOIL: deep, rich, river deposited soils (9, 12), rich, moist (6,9).

6. TOPOGRAPHY:

7. BARK: thin and smooth with horizontal lenticils at first, breaking into scaly plates later, dark brown, almost black (2,3,5,6,8,9,12), reddish-brown to black and rather shiny (4,6,10), bark contains acid that can kill cattle (9).

8. BUD: inconspicuous, dark, red and shiny (2,10), smooth, sharp-pointed, often tinged with gree (2,8,).

9. FLOWER: clustered along a stalk 2-4" long, individual flowers small, 1/4" in diameter, white (3,4,12) produced in many flowerrd racemes 4-5" long, appearing last of May or early June when leaves are half-grown (6).

10. FRUIT: a cluster of dark red cherries, about the size of a pea, ripening in late summer; slightly bitter, but edible (5,6,7,8,9,12); single-seeded juicy fruit, about 1/2" in diameter (8).

11. LEAF: simple/compound; alternate/opposite, narrowly oblong or elliptical in shape, tip drawn out to a short point, base pointed; edges of the leaves finely toothed; dark green and shiny above, duller below with a line of orange-colored hair on each side of the main vein; the leaf stalk with a pair of glands near the base of the blade, are a source of hydrocyanic..(prussic) acid taste like bitter almonds when chewed, wilted leaves are toxic to livestock, occasionally cause the death of animals (3,2,4,5,7,8)

12. SEED: pit in fruit (1,12)

13. TWIG: slender; reddish-brown, covered with a gray, scaly covering at first; lenticels prominent, horizontal on older stems; buds pointed. Source of hydrocyanical (prussic) acide which tastes like bitter almonds when chewed; can kill cattle (2,6,8,9,12), pungent odor when broken (6).

14. WOOD: beautiful smooth grain (12), rather hard, close-grained, light, strong, polished easily (3,6), reddish-brown with yellow sapwood, moderately heavy, hard, strong, fine-grained, doesn't split in seasoning (3,5,8) Next to black walnut, it is the most expensive hardwood in Eastern United States.

15. MATURITY: 40-50'tall, diameter of 10-20" (6,7,) up to 70' in height, 1-3' in diameter (5) may live 150-200 years (3)

16. HOST TO:

17. LARGEST KNOWN: in Lawrence, Michigan Circumference 23'4"; Height 102'; Spread 89'

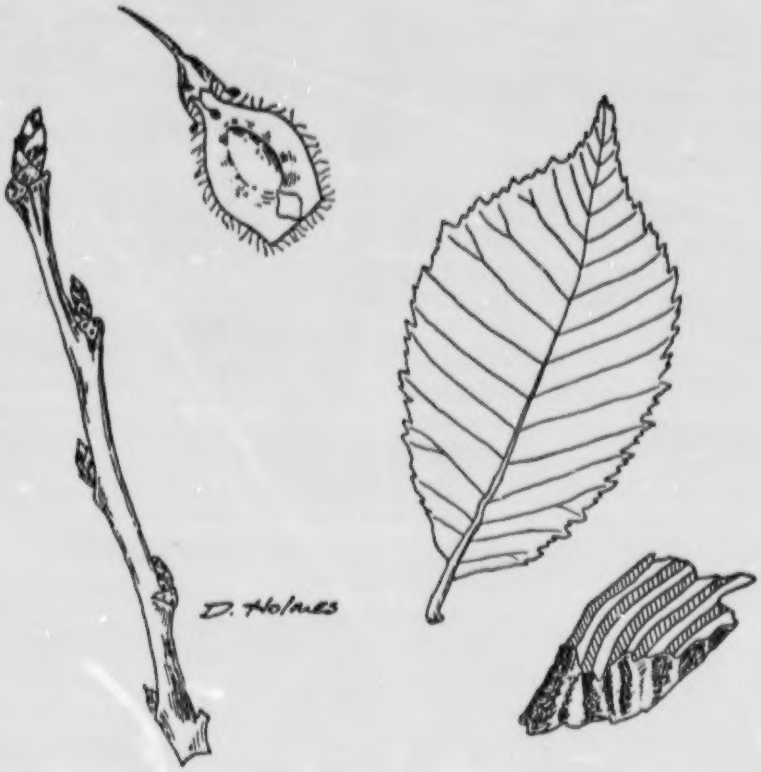
18. DISEASE POTENTIAL:

19. CURRENT USE: cabinets, ornamental planting (5,7,6,12), interior finishing, woodenware, veneer and plywood (5,6,7), quail, turkey, ruffed grouse and songbirds eat the fruit (7,9), small branches used for fuel (9), used for backing, engraving plates for fine printing (9), saw handles (10), beaver eats bark (7). Extract from bark used in tonics(3).

20. HISTORICAL USE: backing, engraving plates for fine printing, extract from bark used by Indians as a remedy for coughs and colds (3).

21. LEGEND:

22. ILLUSTRATION: 13, 23N



American Elm

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 225

TREE DATA SHEET

1. NAME: AMERICAN ELM /Ulmus americana L./ (12,5,6,8,9)

2. CLIMATE: range extends to the Rocky Mountains and southward to Texas. (5)

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT: generally common except in high mountains. (5)

5. SOIL: is essentially a bottomland tree, but will grow under a variety of conditions with some attention. (12,6)

6. TOPOGRAPHY:

7. BARK: gray; rough, furrowed and covered with thin scales; corky white or gray in spots. A cross-section of a piece of this bark reveals alternate layers of light cork and dark brown fiber. (12,6)

8. BUD: are pointed, red-brown, smooth or slightly downy. (9)

9. FLOWER: are small, perfect, greenish, on slender stalks sometimes an inch long, appearing before the leaves in the early spring. (12,5)

10. FRUIT: is a light green, oval shaped samara (winged fruit) with the seed portion in the center and surrounded entirely by a wing. This wing has a conspicuous notch at the end and is hairy on the margin, a mark distinctive of the species. (12,5,6,8)

11. LEAF: alternate, borne simply; 4 to 6 inches long, 1 to 3 inches wide, elliptical, base of the leaf uneven, tip drawn out to a narrow point; edges of the leaves coarsely doubly toothed (the larger teeth are again toothed); dark green, smooth and shiny or somethmes slightly rough above, paler and soft haired beneath. (12,5,6,8)

12. SEED: ripens in the spring and by its wing is widely disseminated by the wind. (9,5)

13. TWIG: slender; reddish-brown, turning gray. (12,8)

14. WOOD: heavy, hard, strong, tough and difficult to split. (5,6)

15. MATURITY: reaches an average height of 60 to 70 feet and a diameter of 4 to 5 feet. (5)

16. HOST TO:

17. LARGEST KNOWN:

18. DISEASE POTENTIAL: two fatal diseases of most elms are the dreaded Dutch and Phloem necrosis. In addition, American Elm is a target for many species of leaf eating insects. (12,9)

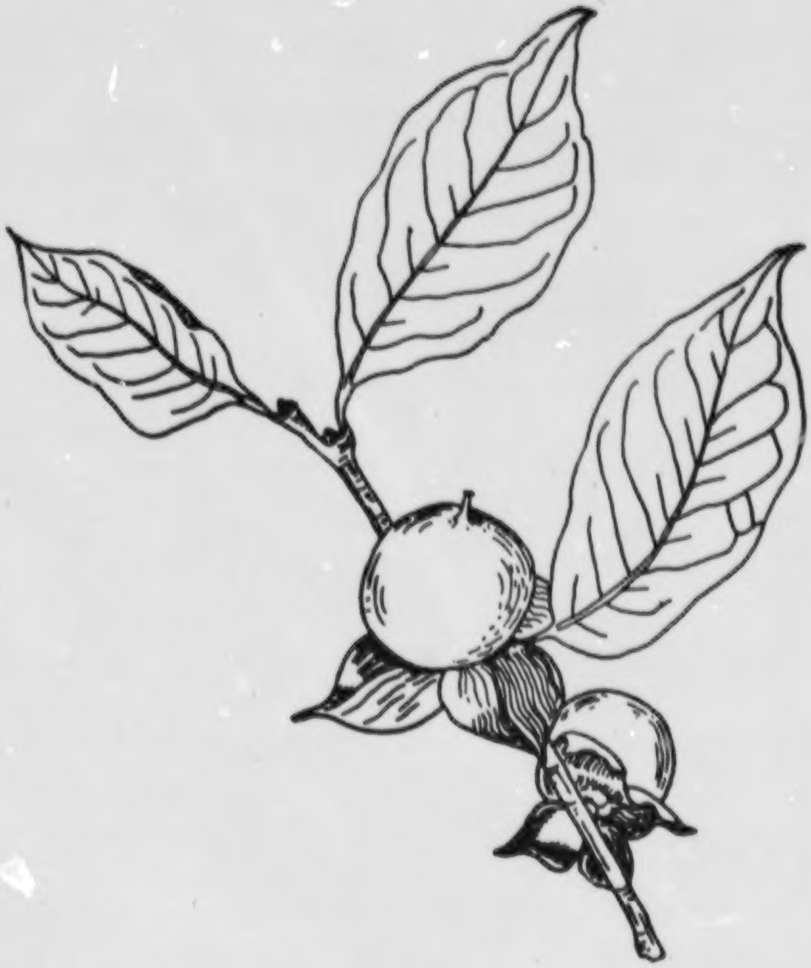
19. CURRENT USE: limited uses are made of elm logs for the manufacture of lumber. It justly holds its place as one of the most desirable shade trees. (12,5)

20. HISTORICAL USE: long ago the bark was used for canoes and rope by the Iroquois Ind

21. LEGEND: The Judgment Tree near Daniel Boone's old home on Femme Osage Creek in St. Charles County is an American elm. It was beneath this tree that the aging Boone, as a Spanish syndic or judge, dispensed justice to his neighbors in the Femme Osage district. (9)

22. ILLUSTRATION: 4, p. 22

FORM# 226



PERSIMMON

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 227

TREE DATA SHEET

1. NAME: Persimmon/ diospyros virginiana/ (1-12) Means fruit of Zeus

2. CLIMATE: prefers dry open situation, Bride Island, Florida, west to eastern Kansas and Texas.

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT: most abundant in old fields though it also occurs on rich bottom lands (5).

5. SOIL: grows on many kinds of soils, but attains its greatest size on sandy, clay soil in bottoms (9).

6. TOPOGRAPHY:

7. BARK: resembles alligator hide (9), almost black and separated into thick nearly square blocks (2,4,5,7,12).

8. BUD: no end bud, each side bud covered by 2 glossy dark green scales (2,12).

9. FLOWER: appear in May, yellowish or creamy, white, somewhat bell-shaped, the two kinds occuring on separate trees, male in clusters of 2 or 3, the female solitary (5,12).

10. FRUIT: pulpy, round, orange-colored, brown berry, an inch or more in diameter and containing several flattened hard, smooth seeds. It is strongly astringent while green, buds quite sweet and delicious when thoroughly ripe (4,5,7,11,12); fleshy berry, large (3/4" - 2" in diameter), parts of flower remain attached to base (2).

11. LEAF: [✓ simple]/compound, [✓ alternate]/opposite, leathery and dark green without teeth on the margin. Average length is about 4" (8), oval, entire 4-6" long, shiny above, paler beneath (2,4,5,7,11,12), tips of leaves pointed, borne on short, stout stalk (12). colorful in fall

12. SEED: 1-8, flat, rather large, edible, but often astringent when fully ripe in autumn (2).

13. TWIG: grayish-brown, smooth, sometimes velvety (2); slender, brown, hairy at first (12).

14. WOOD: hard and dense (9), heavy, strong, heartwood is brown or black, wide sapwood is white or yellowish (5,7,11,12). Useful for fence posts.

15. MATURITY: rarely exceed 50' in height and 1" in diameter (5).

16. HOST TO:

17. LARGEST KNOWN: Diospyros virginiana (1969), 11',5" circumference at 4-1/2', 51' high, 54' spread, Waterproof, La., J. R. Bradley-nominator (1).
in Near Johnston, IN Circumference 13'1"; Height 80'; Spread 74'

18. DISEASE POTENTIAL:

19. CURRENT USE: golf club heads, handles for tools, billiard cues, shutters, mallets; fruit, buds and leaves feed deer, possum, squirrel, quail, raccoon, turkey, fox, coyote (2,4,5,11,12).

20. HISTORICAL USE: Confederate soldiers boiled persimmon seeds as a sub for coffee, important role in the Indian diet (9), Osage Indians of Mo. made a bread called Staneca from the pulp of the persimmon and ground corn - tasted something like gingerbread (12).

21. LEGEND:

22. ILLUSTRATION: 4, p. 50

LINDBERGH SCHOOL DISTIRCT OUTDOOR EDUCATION Form # 228

Repeat of Form # 212 MULBERRY

See picture Form # 212

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 229

Repeat of Form # 213 MULBERRY

See data Form # 213

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 230

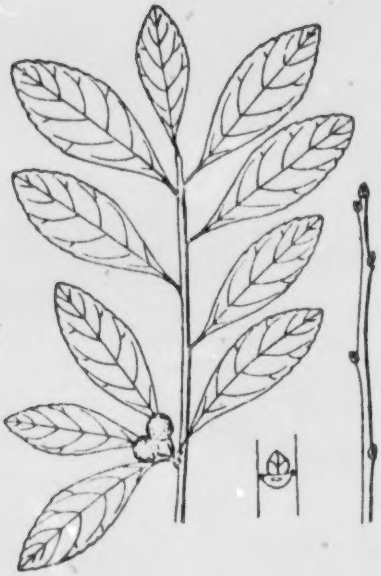
Repeat of Form # 214 SASSAFRAS

See picture Form # 214

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 231

Repeat of Form # 215 SASSAFRAS

See data Form # 215



Deciduous Holly

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 233

TREE DATA SHEET

1. NAME: POSSUM HAW /Ilex decidua Walt/ (DECIDUOUS HOLLY) (12)

2. CLIMATE: has adapted to many dry upland sites in the Ozarks. (12)

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT:

5. SOIL:

6. TOPOGRAPHY:

7. BARK: thin; brown; with warty projections. (12)

8. BUD:

9. FLOWER: male and female flowers on separate trees; male flowers in clusters of from 3 to 9 blooms, female flowers single or in clusters of from 2 to 3 blooms. (12)

10. FRUIT: an orange-colored, berry-like drupe, often remaining on the tree over winter. (12)

11. LEAF: alternate. borne simply on short stalks; ellipitical to spear-shaped, base pointed, tip pointed or often rounded; edges of the leaves finely toothed, This species is often called deciduous holly because, unlike the native American holly, this tree loses its leaves in the fall of the year. (12)

12. SEED:

13. TWIG: slender, smooth and silver-gray; buds small, blunt. (12)

14. WOOD:

15. MATURITY:

16. HOST TO:

17. LARGEST KNOWN: a possumhaw 1 foot 1 inch in circumference and 20 feet high was found in Big Oak Tree State Park. (12)

18. DISEASE POTENTIAL:

19. CURRENT USE: berries serve as excellent wildlife food throughout the winter. (12

20. HISTORICAL USE:

21. LEGEND:

22. ILLUSTRATION:

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 234

Repeat of Form # 220 **SYCAMORE**

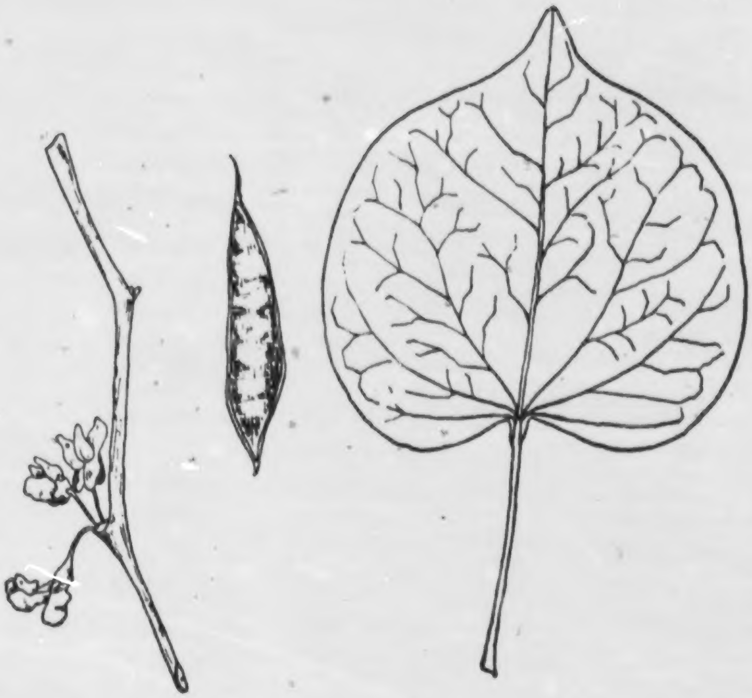
See picture Form # 220

Form # 235

Repeat of Form # 221

SYCAMORE

See data Form # 221



Redbud

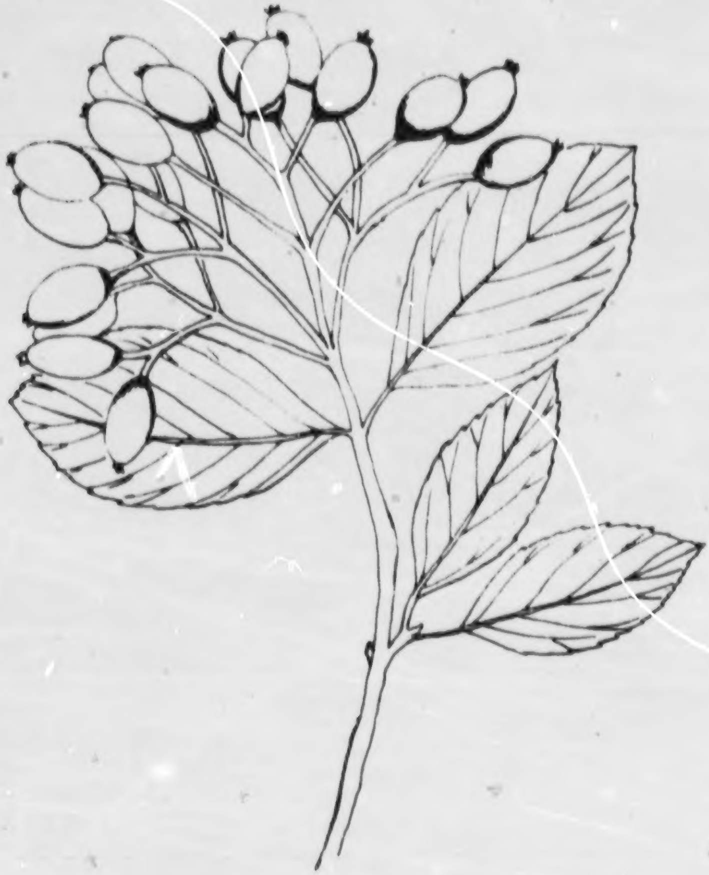
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form# 237

TREE DATA SHEET

1. NAME: Redbud/Cercis canadensis/(1-12)
2. CLIMATE:
3. GROWTH RATE:
4. LANDSCAPE PLACEMENT:
5. SOIL
6. TOPOGRAPHY: MO hillsides, under larger trees, or on the borders of fields or hillsides and in valleys.
7. BARK: covered with small, dark loose scales, underbark reddish-brown (7,9,12); long-narrow plates separating into thin scales (5)
8. BUD: small and inconspicuous, blunt (12), purple-red, 1/8" (10)
9. FLOWER: purplish-red in clusters along the stem; appearing before the leaves in early spring, pea-type flower (9, 12)
10. FRUIT: a legume, oblong, flattened, many seeded pod, 2-3" long, reddish, persisting on the tree most of the winter (7, 9, 12)
11. LEAF: [✓ simple]/compound, [✓ alternate]/opposite, heart shaped (11), edges smooth, dark green in summer, turning yellow in the fall (12), 3-5" long and wide (5,7)
12. SEED: inside the fruit pod, round, pea-like.
13. TWIG: slender, brown, turning darker with maturity (12), grow zigzag (4)
14. WOOD: heavy, hard, not strong, rich, dark brown in color, of little commercial importance (5), takes a fine polish (9)
15. MATURITY: ordinarily attains a hight of 25-50' and a diameter of 6-12' (5,9)
16. HOST TO:
17. LARGEST KNOWN:
18. DISEASE POTENTIAL:
19. CURRENT USE: of little value except as an ornamental (5,9,12), bark is food for beaver (7,9), birds eat the small, hard, bony seed (9)
20. HISTORICAL USE: State tree of Oklahoma adopted in 1937
21. LEGEND: believed by some that George Washington and Thomas Jefferson had a hand in naming this tree. Also, legend has it that it was this tree upon which Judas Escariot hanged himself. Each year in remorse it weeps tears of blood-like blossoms at Easter time (9)
22. ILLUSTRATION: 4, p. 51

FORM#238



BLACKHAW

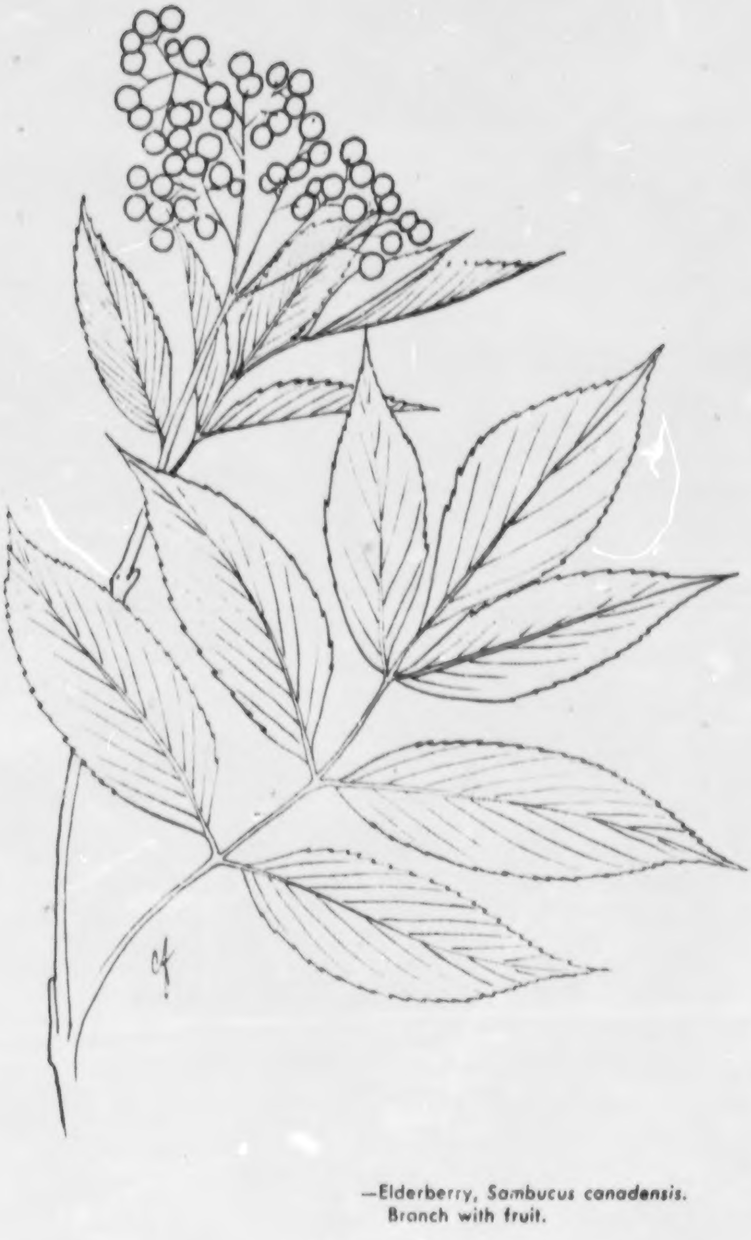
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form# 239

TREE DATA SHEET

1. NAME: Blackhaw/Viburnum prunifolium (1-12)
2. CLIMATE:
3. GROWTH RATE:
4. LANDSCAPE PLACEMENT: along rocky stream banks as well as in dry woods (12).
5. SOIL: rocky stream banks (12).
6. TOPOGRAPHY:
7. BARK: gray; broken into thick irregular shaped plate - like red-brown scales (12).
8. BUD: essentially smooth (12).
9. FLOWER: in large clusters on the ends of the branches; individual flowers 1/4" in diameter on slender stalks, white (12).
10. FRUIT: a dark blue, almost black, drupe, egg-shaped, covered with a white frost-like bloom; stone 1/2" long, flattened (12).
11. LEAF: [✓ simple]/compound; alternate/[✓ opposite]; borne on smooth, slightly winged stalks, oval or oblong in shape, base pointed, tip drawn out to a point; edges of the leaves finely toothed; yellow-green, not lustrous and smooth above, remove granular beneath, turn brilliant scarlet or deep Burgendy red during the fall (12).
12. SEED: same as fruit (12).
13. TWIG: slender; reddish brown and smooth at first becoming dull and grayish (12)
14. WOOD:
15. MATURITY:
16. HOST TO:
17. LARGEST KNOWN:
18. DISEASE POTENTIAL:
19. CURRENT USE:
20. HISTORICAL USE:
21. LEGEND:
22. ILLUSTRATION: 16, p. 221

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 240



—Elderberry, *Sambucus canadensis.*
Branch with fruit.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 241

TREE DATA SHEET

1. NAME: ELDERBERRY (AMERICAN ELDER) /Sambucus canadensis L/ (12)
2. CLIMATE: found in every county in Missouri. (12)
3. GROWTH RATE:
4. LANDSCAPE PLACEMENT:
5. SOIL: found most commonly in rich soils bordering streams and rivers. (12)
6. TOPOGRAPHY:
7. BARK:
8. BUD: knobby; globe-shaped. (12)
9. FLOWER: borne in a very large flat-topped cluster; individual flowers small, white. (12)
10. FRUIT: a large flat-topped spray or cluster of dark purple berries. These berries are sweet and edible. (12)
11. LEAF: opposite, borne compound with 5 to 11 leaflets; leaflets narrowly egg-shaped to spear-shaped, rounded at the base, pointed at the tip; edges of the leaflets irregularly toothed; smooth and dark green on both sides. (12)
12. SEED: same as fruit (12)
13. TWIG: stout; pithy, gray-brown with prominent lenticles. (12)
14. WOOD:
15. MATURITY: rarely over 10 feet high. (12)
16. HOST TO:
17. LARGEST KNOWN:
18. DISEASE POTENTIAL:
19. CURRENT USE: the berries furnish food for wildlife and are commonly used in homemade wine, preserves, and jellies. (12)
20. HISTORICAL USE:
21. LEGEND:
22. ILLUSTRATION: 16, p. 214

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 242

Repeat of Form # 212 MULBERRY

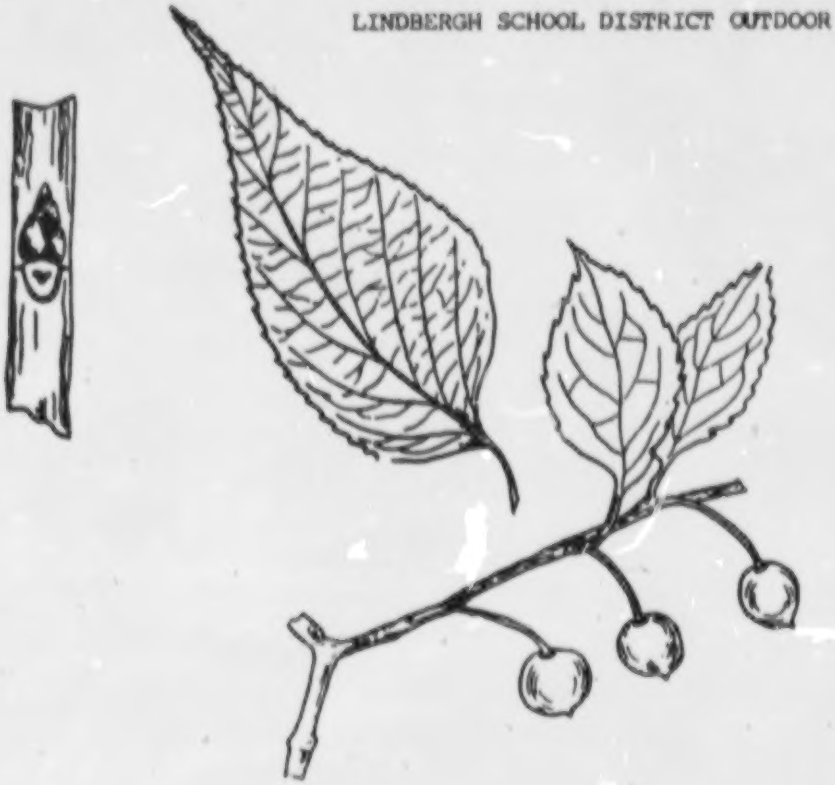
See picture Form # 212

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 243

Repeat of Form # 213 MULBERRY

See data Form # 213

FORM#266



HACKBERRY

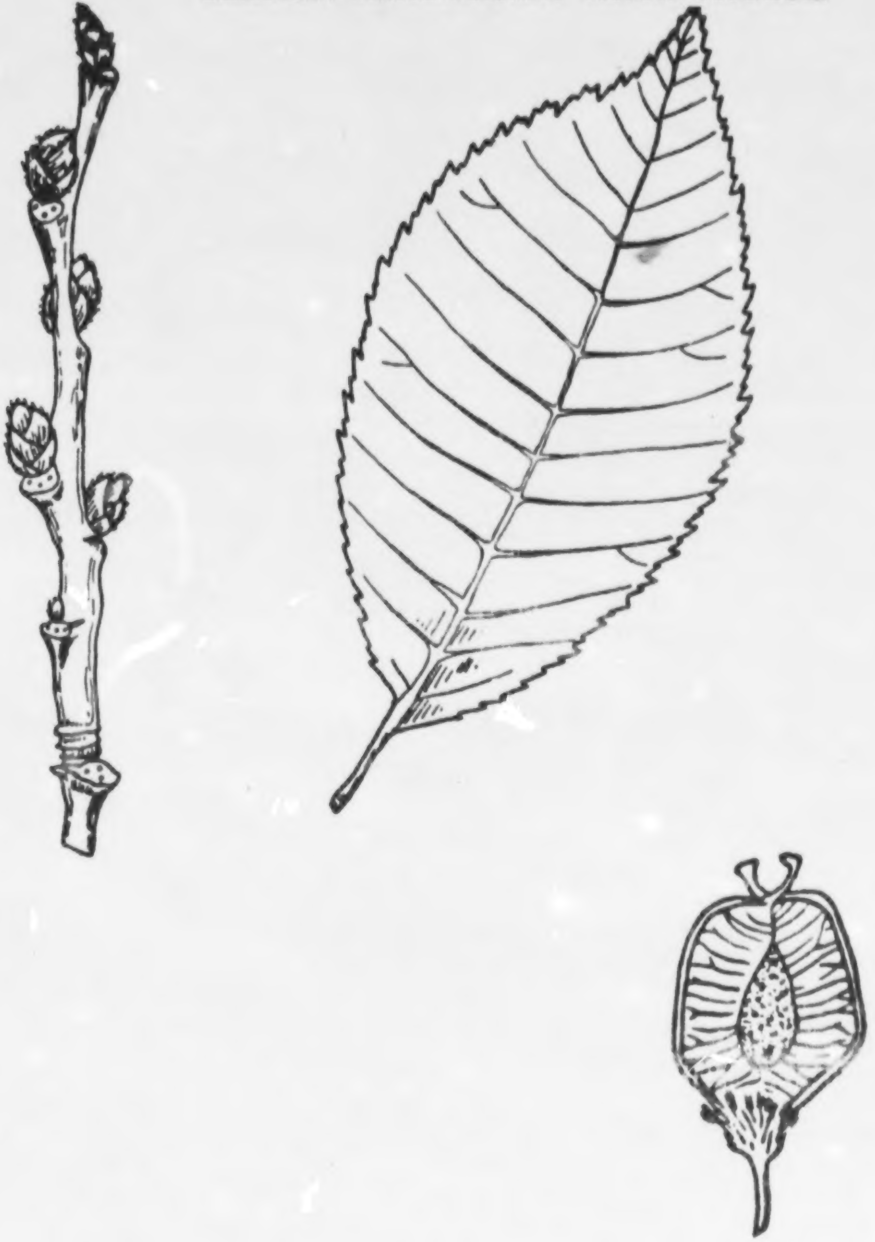
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 245

TREE DATA SHEET

1. TREE: Hackberry/Celtis occidentalis/ (1-12)
2. CLIMATE: can tolerate flooding periods of short duration without any apparant injury. (12)
3. GROWTH RATE:
4. LANDSCAPE PLACEMENT:
5. SOIL: occurs most abundantly on rich alluvial land, but thrives, however, on various types of soil, from poorest to richest (3, 9, 5)
6. TOPOGRAPHY: bottomlands (12)
7. BARK: grayish; rough with warty projections, smoother on more vigorous trees (12, 5, 2, 4, 3)
8. BUD: small, triangular in shape (12, 9)
9. FLOWER: male and female blooms appearing on the same tree as the bisexual flowers; female flowers are green, borne singly; male flowers are green, borne in small clusters. (5, 12)
10. FRUIT: fleshy, berry-like, borne on long stalks, purple when mature; flesh orange, (7, 3, 4, 10, 9, 2, 11, 5, 12) sweet edible, sweet (3)
11. LEAF: [✓ simple]/compound; [✓ alternate]/opposite, borne on a thin stalk; the leaves narrowly egg shaped, long pointed, often hooked in a sickle-like fashion; edges of leaves toothed except near the unsymmetrical base; veins prominent, thin; smooth above, hairy along the veins below (2, 13, 5, 9, 3, 7) light green, 2-1/2 - 4" long with narrow points (11)
12. SEED: same as fruit (1-12)
13. TWIG: slender, light brown, becoming gray at maturity; pith at the center of the twig broken by intermittent chambers (12, 2, 9, 10, 7)
14. WOOD: tough and flexible, of little major importance (12) heavy, rather soft, weak and decays readily when exposed (7, 9, 5)
15. MATURITY: have been known to grow to 125' in height (12) usually 30-50' high & 10-20" in dia. (5, 7)
16. HOST TO:
17. LARGEST KNOWN:
18. DISEASE POTENTIAL: common disease of hackberry causes erratic cancerous twig growths called Witches brooms". During the growing season, the foilage of hackberry is subject to infestations of at least four different gall-producing insect species, but permanent damage seldom results from these attacks. (12, 9, 10, 3)
19. CURRENT USE: ornamental, fruit and galls (18 above) are eaten by birds and squirrels, small quantities used for boxes, crates and inexpensive furniture (11, 12, 2, 9) fuel, lumber, railroad ties which are given preservative treatment (5) farm tools, crates (11)
    Fruit is eaten by wild turkey, flicker, yellow billied sapsucker, mocking bird, brown thrashes, robin, eastern blue bird, cedar war wing, cardinal and racoon (9, 10, 3, 7)
20. HISTORICAL USE: at one time, the wood was used for barrel hoops (12) planted as windbreaks in South in 1930's (9)
21. LEGEND:
22. ILLUSTRATION: 4, p. 26

FORM# 246



SLIPPERY ELM

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form# 247

TREE DATA SHEET

1. NAME:SLIPPERY ELM (RED ELM)/ Ulmus and fulva rubra/ (1-12_

2. CLIMATE: water loving tree (9)

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT: grows best on low ground, though it sometimes occurs on high ground (6), banks of streams, low hillsides (5,12)

5. SOIL: low, rich soil (6)

6. TOPOGRAPHY:

7. BARK: thick, cark brown tinged with red, divided by shallow fissures into flat ridges and covered with flat scales. Inner bark is mucilaginous (2,3,5,6,7,8,9,12), frequently 1" thick (5).

8. BUD: winter buds are obtuse, dark brown in color and covered with rusty hairs (6) terminal bud absent, lateral buds [illegible]/4" long (8), egg-shaped (9).

9. FLOWER: appear before the leaves about the middle of April (6), clustered along the branch, individual flowers on short stems, reddish (12).

10. FRUIT: small, flattened and winged without hairs on the margin. Ripens in late spring (2,6,8,9), wafer-like in diameter (4,7), consists of a seed surrounded by a thin, broad, greenish wing; ripens when leaves are about 1/2 grown (5,8,12).

11. LEAF: simple/compound; alternate/opposite, 4-6" long, sharply toothed, dark green and very rough on the upper surface and hairy on the under surface (2,3,5,6,7,9,12) oval, oblique at base, margin doubly serrate, midrib and parallel veins prominent (8).

12. SEED: enclosed in the fruit

13. TWIG: new twigs are rough to the touch; gray in color (2,4,8,12), slender to moderately stout (9,12), can't break with a snap because wood is flexible and tough.

14. WOOD: heavy, strong, durable (6), close-grained, tough, hard (3,5,8,9,12) used for fence posts

15. MATURITY: grows up to 50 feet in height and 2 inches in diameter (5,6,)

16. HOST TO:

17. LARGEST KNOWN:

18. DISEASE POTENTIAL: susceptible to Dutch Elm disease and many leaf-chewing insects (9). Elm phloem necrosis (12)

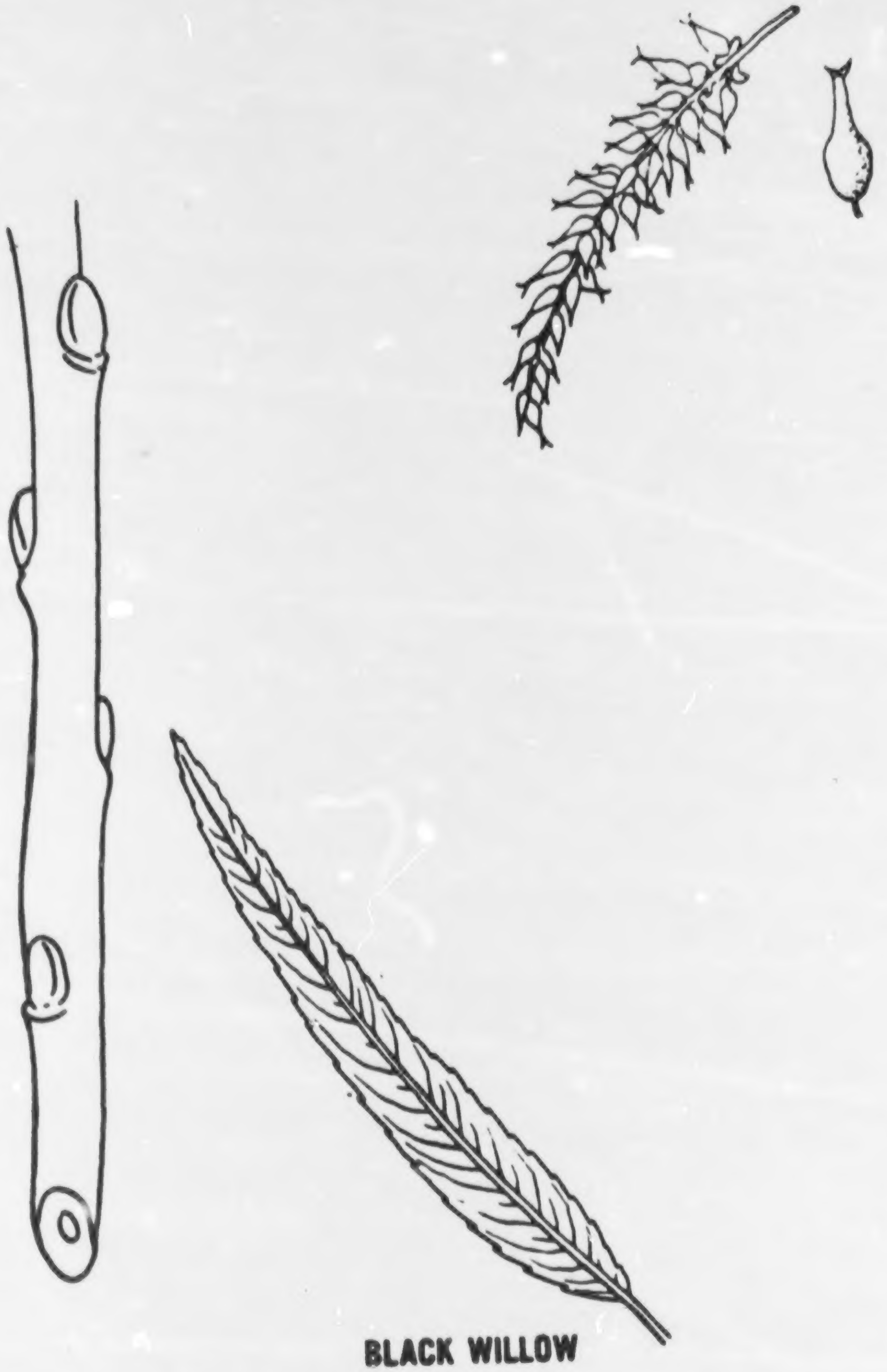
19. CURRENT USE: fence posts, crossties, agricultural implements, ribs for small boats (5,8); food for grey and fox squirrel and deer (seeds, buds, leaves) (9)

20. HISTORICAL USE: pioneers used the pounded inner bark as a poultice or water solution as a remedy for throat inflammation. When chewed, it quenches the thirst. Iroquois indians called it "DO HOOSH AM" meaning it slips. Used inner bark medicinally;for flavoring buffalo tallow and making a gooey substance used to catch birds; peeled outer bark in spring for making canoes.

21. LEGEND:

22. ILLUSTRATION 4 p. 23
13, 23H

FORM# 248



BLACK WILLOW

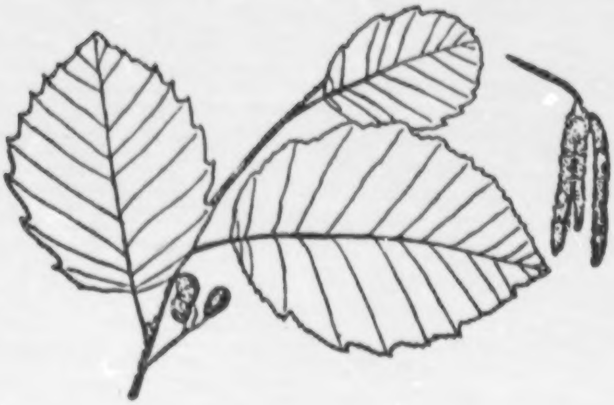
Form # 249

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE DATA SHEET

1. NAME: Black Willow also called Swamp Willow/ Salix nigro/ (1-12)
2. CLIMATE: moisture-loving (3,8,12), but is at home on prairies and plains, even invades the desert (5).
3. GROWTH RATE: very rapid (11)
4. LANDSCAPE PLACEMENT: found generally in low wet woods and along borders of streams, sloughs and ponds (3,6,12).
5. SOIL: moist (12).
6. TOPOGRAPHY:
7. BARK: dark brown, deeply furrowed on old trees, young trees with long, narrow, loose ridges (2,3,5,6,8,12).
8. BUD: small, long-pointed or egg-shaped with a single scale covering the entire bud (12,2,4), smooth with overlapping scales (10), winter buds-terminal bud absent, lateral buds small, sharp-pointed, reddish brown in color; only 1 bud scale (2,4,5,8)
9. FLOWER: male and female flowers borne separately on the same tree, male flowers in erect catkins, 1-3" long, female flowers green, in short catkins (12), flowers of different sexes borne on separate trees (5,9), staminate flowers of the black willow have 3-5 stamens each (5).
10. FRUIT: a small narrowly egg-shaped capsule about 1/4" long containing minute seeds (2,12) smooth capsule, about 1/8" long, occurring in large numbers on drooping tassels, ripening in spring, reddish-brown in color (8).
11. LEAF: alternate/opposite, borne simple /compound, long, narrowly spear-shaped, 3-6" long, 3/8-3/4" wide, round or pointed at base, long-pointed at the top, edges of leaves finely toothed, 15-30 teeth per inch; smooth green above and beneath. Stipules (small leaves at the base of leaf stems of main leaves) remain through most of summer. (3,2,4, 5,6,8, 10, 12)
12. SEED: with a parachute of silky hair (2,12) within capsule, covered with a dense tuft of long, silky hairs (2,8).
13. TWIG: very slender, green at first, becoming smooth and reddish-brown (2,8,12), spray out in large numbers from angles or knots at the trunk (10), called osiers (10), log-brittle (10).
14. WOOD: one of the lightest and softest woods of all the hardwoods, rather weak (3,7,8,12) soft and almost useless for timber (3,6,10,11).
15. MATURITY: grows to a height of 10-65' (6), may grow to 70-80' in height, 2 or more feet in diameter (9).
16. HOST TO:
17. LARGEST KNOWN:
18. DISEASE POTENTIAL:
19. CURRENT USE: used only to a limited extent in Mo. for boxes and crates (8,12), river-bank stabilizer - its roots help hold soil from washing along river and stream beds (9,12), twigs woven into baskets and wicker furniture (7,9,10), used occasionally for farm lumber (6), bark of the root used as ingredient of tonics to purge the blood (9) artificial limbs and packing cases (5). Willow charcoal in demand for manufacture of gunpowder.
20. HISTORICAL USE: before the discovery of plastics, toys were made from willow (9). Potowatomie Indians made a scarlet dye from roots, pioneers brewed tea from roots and used an extract from bark as a substitute for quinine (3).
21. LEGEND:
22. ILLUSTRATION: 13, 23A

Form # 250

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION



ALDER

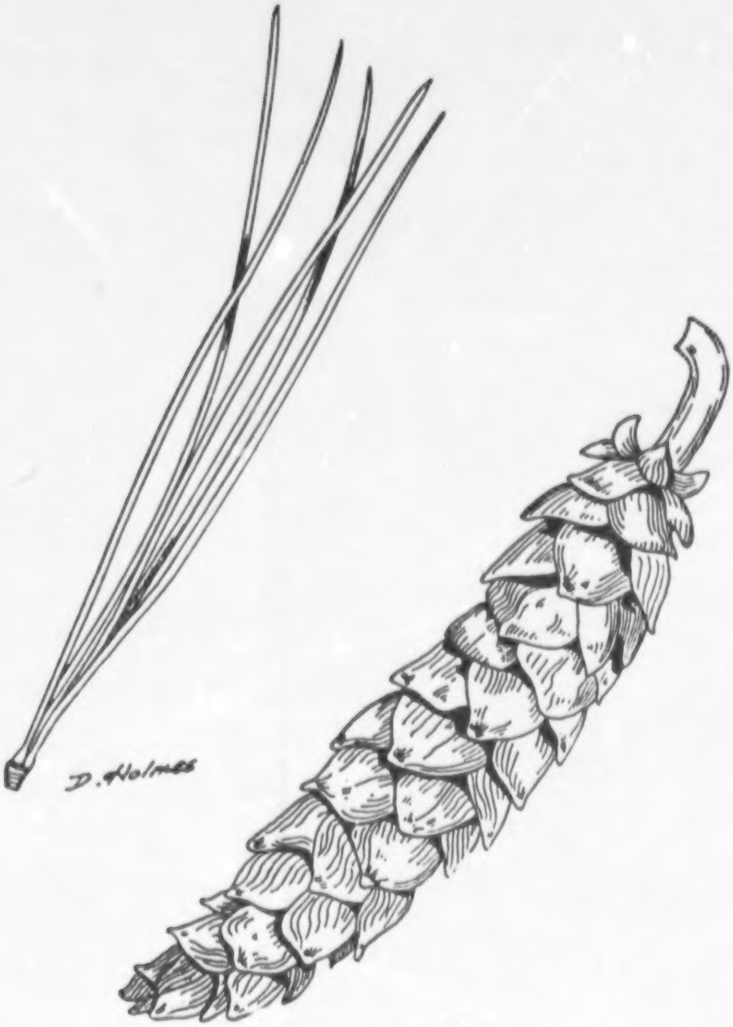
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 251

TREE DATA SHEET

1. NAME: Alder, Hozel /Alnus serrulata/Alnus = alder/ serrulata, fr. serrula = a little saw probably refers to leaf)/
2. CLIMATE: borders streams and swamps (12)
3. GROWTH RATE:
4. LANDSCAPE PLACEMENT: bordering streams and swamps, around springs and boggy ground (12)
5. SOIL: boggy ground where water is available throughout the year (12)
6. TOPOGRAPHY:
7. BARK: Brown to dark gray, prominent large horizontal lenticals up to 2-1/2" long (12)
8. BUD: with 2 or 3 scales or without any (those from which the flowers develop) finely hairy (12)
9. FLOWER: appearing before the leaves. Male flowers drooping in yellow-brown clusters, female flowers in short upright clusters, small (12)
10. FRUIT: Woody cone, 1/2 - 3/4" long (2)
11. LEAF: [✓ simple]/compound, [✓ alternate]/opposite, 1-1/2 - 2-1/2" long, egg-shaped, edges finely toothed, dark green, smooth, (12)
12. SEED: same as fruit
13. TWIG: slender
14. WOOD:
15. MATURITY:
16. HOST TO:
17. LARGEST KNOWN:
18. DISEASE POTENTIAL:
19. CURRENT USE:
20. HISTORICAL USE: the Latin poet Vergil mentions ships of Alder wood
21. LEGEND:
22. ILLUSTRATION: 6, p. 42

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 252



White Pine

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form# 253

TREE DATA SHEET

1. NAME: White Pine/Pinus strobus/ (1-12)

2. CLIMATE: grows best in humid, cool situations of northern latitudes, also thrives on the sandy, loamy soil of the Lake states. (3)

3. GROWTH RATE: Rapid (5,6,8), average height growth of 1 foot each year. (3,6)

4. LANDSCAPE PLACEMENT:

5. SOIL: grows on moist and sandy soil but develops best on fertile, well-drained soils. (6)

6. TOPOGRAPHY:

7. BARK: on young trees and branches greenish brown and smooth, later darker, grooved and scaly. Produces one whorl of about 3-7 side branches each year, useful in estimating age (2,3,6,8,11) 1-2 inches thick, very dark and divided into broad ridges (6).

8. BUD: egg-shaped, usually less than 1/2" long; gray-brown (2), sharp-pointed, yellowish brown. (8)

9. FLOWER: pollen-bearing flowers are yellow and clustered in cones, about 1/3 inch long at the base of the growth of the season. The seed-producting flowers occur on other twigs and are bright red in color (5).

10. FRUIT: cone, 4-6" long, cylindrical with thin, usually very gummy scales, containing small, winged seeds (2,3,5,8,11) 1" thick, no prickles, stalked, drooping, slightly curved, resinour, remains attached for one to several months after ripening in autumn of second season. (2,6,8)

11. LEAF: needles, 3-5" long, bluish-green on the upper surface and whitish beneath and occur in bundles of 5, which distinguishes it from all other eastern pines (2,3,5,6,8,11), 3 sided (2).

12. SEED: contained in fruit and requires two years to mature, 2 under each scale, winged, ripening in September (8).

13. TWIG: slender, flexible, with rusty hairs when young, finally smooth (2,8); tend to grow upward above their branches so the needle masses are underscored by horizontal black lines of lich (10), light brown (8).

14. WOOD: light, soft, durable, not strong, light brown in color, often tinged with red, and easily worked, high quality (3,5,6,8,11), even textured (8).

15. MATURITY: there are trees over 100 years old that have attained a height of 90 feet with a diameter of 30" (5). Average 70-80' tall and diameter of 1-3 feet (6).

16. HOST TO:

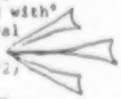
17. LARGEST KNOWN: species and year reported - Eastern white pine, pinus strobus, 1969; circumference at 4-1/2 feet - 18',2"; height - 147'; spread - 73'; location of tree and nominator - Blanchard, Maine. Clifford A. Page, Atkinson, Maine (1).

18. DISEASE POTENTIAL: white pine blister rust was introduced into America 35 years ago and has become widespread and highly destructive to both old trees and young growth (5). Spread by white pine from currants and gooseberries.

19. CURRENT USE: boxes, pattern making, matches, reforestation on light soils (3,5), ornamental (2,5,8,10,11,12), interior trim, sash and doors (8), light and medium building construction, cabinet making, furniture, box boards, boat planking, interior and exterior finish, pulp and wood flour (6).

State tree of Idaho and Michigan

20. HISTORICAL USE: State flower of Main - 1945. Much used in old colonial houses where even shingles were of white pine (5,10). Was used in tall masts and spars of New England clipper ships (6,10). In 1605, a captain in the British Royal Navy collected samples here and brought them back to England for display (6). Shortage of ship masts in Europe led to England's Broad Arrow Policy in 1691 whereby pines of 24" or more in diameter within 3 miles of water were lazed with* the "Mark of the Broad Arrow"; such trees to be reserved for use in the Royal Navy. The term "Kings Pine" originated from this policy (6). Lapps used bark for bread and tea from needles. (Globe Democrat, Monday, Dec. 25, 1972)



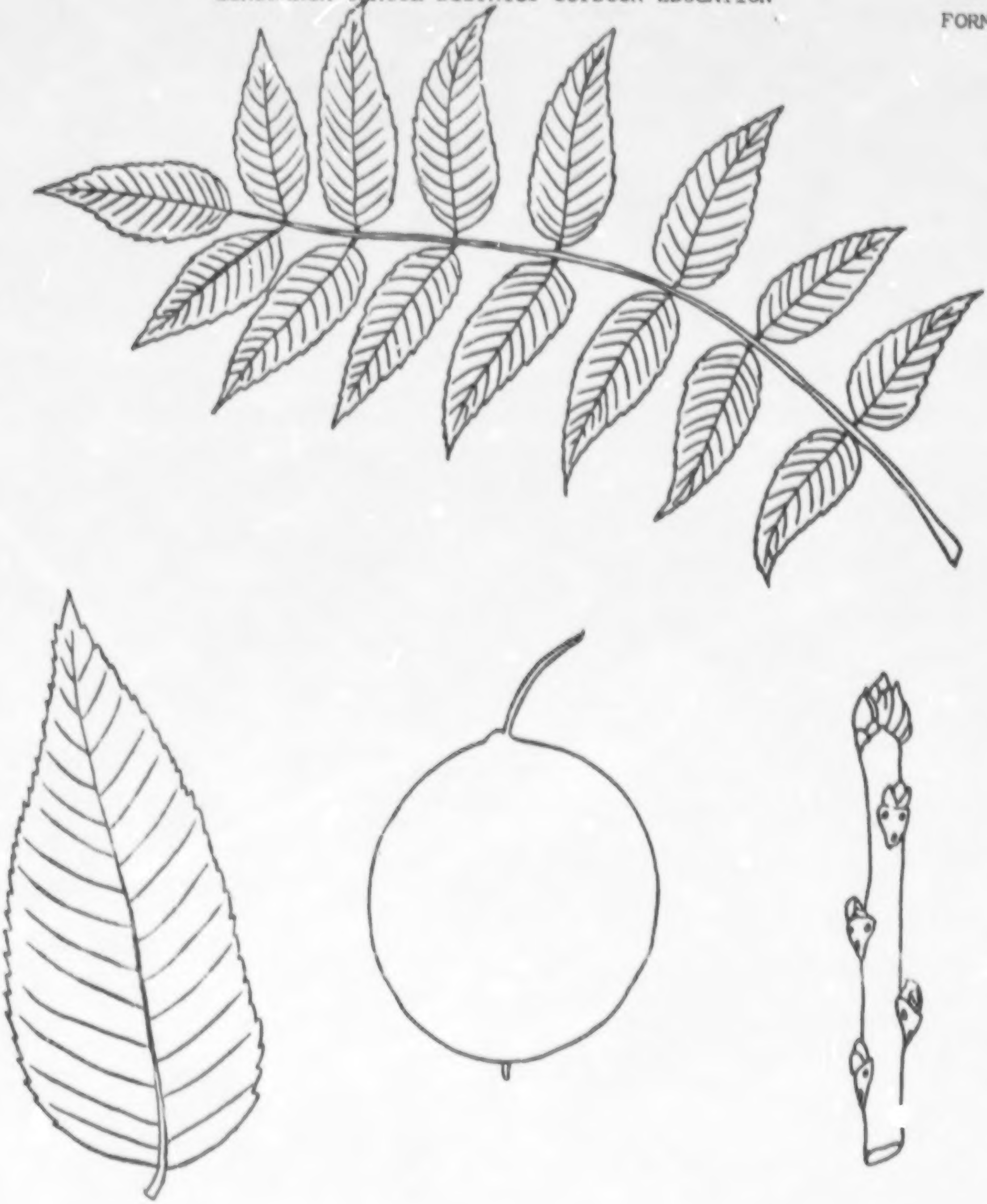
*George Meymouth In England, still known as Weymouth Pine

The Pine Tree Law meant "a - holding" out on the bests trees for the King of England. These trees were used for masts. The trees had to be three feet in diameter or twenty-four inches in diameter one foot off the ground. They were marked with the King's Broad Arrow Sign. See above.

21. LEGEND:

22. ILLUSTRATION 4, p. 58

FORM# 254



BLACK WALNUT

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 255

TREE DATA SHEET

1. NAME: Black Walnut/Juglans nigra/ (1-12)

2. CLIMATE: Sensitive to soil conditions. Grows in most of eastern 1/2 of U. S. Missouri is one of the greatest production centers for black walnut. Since 1899 one-fifth to one-sixth of all the black walnut lumber has come from forest and woodlands of Missouri (12).

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT: common at low elevations in rich, well-drained lands.

5. SOIL: deep, rich soil where moisture is plentiful

6. TOPOGRAPHY:

7. BARK: variable; almost black, dark chocolate brown, inner bark, fissured on young trees, broken into blocks on old trees. (3,7,12)

8. BUD: short, broad and fuzzy (4), gray, downy; side buds 16" long and bud larger. (2)

9. FLOWER: male catkins 3 to 5 inches long, drooping, female flowers 3 to 5 on spikes (12)

10. FRUIT: large globe-shaped nut in a thick, leathery rough, green husk; shell hard and bony with rounded ridges; the kernel sweet and edible. They are used in candy, cookies, ice cream and other confections. Shell is used for an abrasive material. Nuts make excellent food for wildlife (2,3,12). Borne singly or in pairs, enclosed in solid green husks which does not split open, even after the nut is ripe. Kernel is highly nutritious, (5,7), oily kernel, sweet.

11. LEAF: simple/compound, alternate/ opposite, 13 to 25 leaflets; individual leaflets, spear shaped, edges of the leaflets finely toothed; base rounded, tip long pointed; upper surface smooth and shiny, lower surface soft and downy (2,3,4,5,7,11). Leaflets about 3" long, extremely tapering, toothed along the margin. (12)

12. SEED: Same as fruit

13. TWIG: stout, brownish, covered initially with rust-colored hairs; center of the twig buff colored, pith broken up into chambers; buds covered with a silky down (2,8,12). Have cream colored pith and leaf scars without downy pods above (5) pith is chambered, somewhat like a honeycomb, brown.

14. WOOD: very stable after seasoning and has fine machinery properties as well as uniform texture and strength. It is used for high quality furniture, gunstocks, fine veneers and countless other products (5,7,3,8,12). Superior quality and value (5), freedom from warping and checking; susceptibility to a high polish, durable (5) ability to resist blows without splintering and withstand stress under extreme of heat and cold. Stumps used to make veneer (11); easy to work yet durable. (9)

15. MATURITY - frequently attain a height of 100' (5)

16. HOST TO:

17. LARGEST KNOWN: in Ann Arundel County, MD Circumference 20'3"; Height 108'; Spread 128'

18. DISEASE POTENTIAL:

19. CURRENT USE: furniture, cabinet work and gunstocks (2,5), richly flavored nut meats are used by bakers, in candy and ice cream. Hard shells are used for ornaments; pulverized they are used to drill oil wells, cleaning engines and make activated carbon (9)

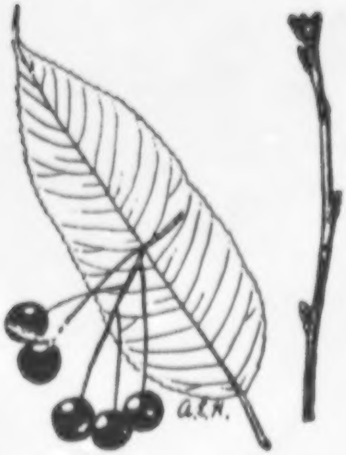
20. HISTORICAL USE: Log cabins, Indians used it to make brown dye.

21. LEGEND:

22. ILLUSTRATION: 15, p. 32

271

Form # 256



PIN CHERRY

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE DATA SHEET

Form# 257

1. NAME: Wild Red Cherry; also Bird, Pin, free Cherry/ Prunus Pensylvanica

2. CLIMATE: grows in burnt over places (10)

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT:

5. SOIL: Light soil (5)

6. TOPOGRAPHY:

7. BARK: dark reddish-brown (5,6,8), red-brown, smooth and peels off (8, 10) broken into thin plates (6), inner bark slightly aromatic and very bitter (6), large lentrials show orange when rubbed (6)

8. BUD: small, ovoid, reddish-brown and clustered at the end of twigs (6,8), terminal bud present, usually smaller than the lateral buds around it (8)

9. FLOWER: white, in clusters of 4 or 5 and appear in May when leaves are only about half grown (6)

10. FRUIT: round and bright red in color (5,6,8), bright translucent red cherries on a long stem, a few together in clumps instead of finger-like clusters (8,10), about the size of a pea, globular in shape, ripens from first of July to August (6,8)

11. LEAF: lance-shaped, bright green and shiny above (5,6) simple/compound alternate/opposite , narrow to oblong, widest in lower 1/3, rather sharp pointed, finely and sharply toothed on the edges, without hairs below, 3-4" long, bitter and aromatic, with glands on petiole (6,8)

12. SEED: enclosed in fruit (8)

13. TWIG: shiny, reddish brown and very slender (6), smooth, characteristic bitter almond taste, peculiar odor. (8)

14. WOOD: coarse grained, soft-light (6) brown

15. MATURITY: seldom grows taller than 25-30' and 6-10" in diameter (6)

16. HOST TO:

17. LARGEST KNOWN:

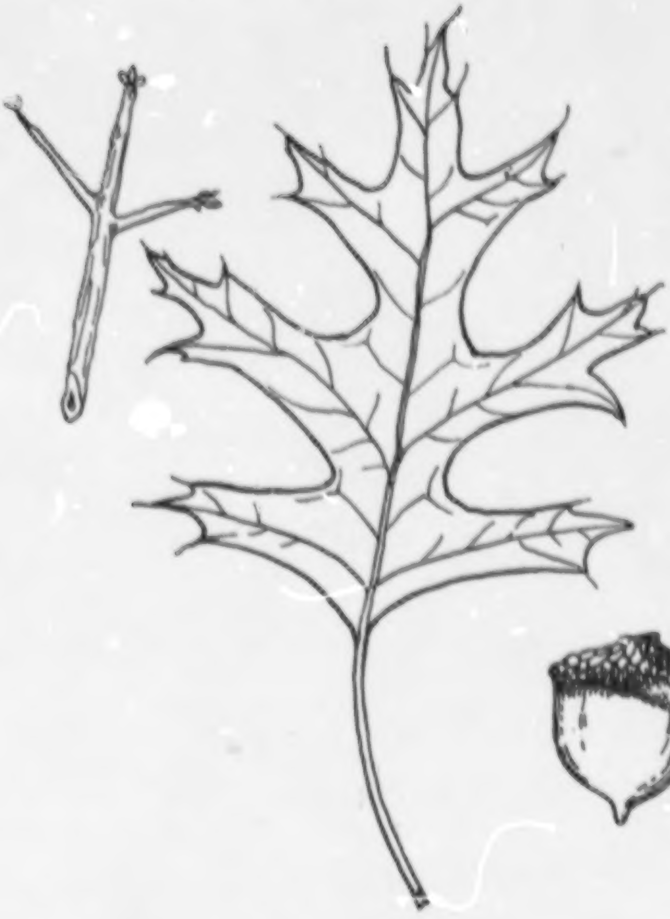
18. DISEASE POTENTIAL:

19. CURRENT USE: little value except as a protection and cover for the soil on recent clearings or burned areas (6,9), not used commercially; the gum is edible (4), birds eat the fruit (8)

20. HISTORICAL USE:

21. LEGEND:

22. ILLUSTRATION: 8, p. 55



Pin Oak

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE DATA SHEET

Form # 259

1. NAME: PIN OAK /Quercus palustris Muenchh/ (12,9,5)

2. CLIMATE: found throughout Missouri. (12,9)

3. GROWTH RATE: fastest growing oak. (5,9)

4. LANDSCAPE PLACEMENT: found scattered with other kinds of trees in fence rows and along draws in the prairie regions of the state. (12,5,9)

5. SOIL: a wet-land tree growing in the bottomlands in most areas but also on poorly drained prairie soils. (12,9)

6. TOPOGRAPHY:

7. BARK: is smooth and shiny in youth, becoming roughened on the older portions of the trunk. (12,5,9)

8. BUD:

9. FLOWER: male and female flowers borne separately on the same tree; male flowers in hairy catkins, 2 to 3 inches long, female on short, hairy stalks, reddish. (12,5)

10. FRUIT: an acorn, small, 1/2 inch long, often striped with dark lines; enclosed 1/3 of the way with thin saucer-shaped cups. These acorns are a favorite food of water fowl in swamps and river borders, two of the many sites on which pin oak is found. (12)

11. LEAF: are more deeply lobed amd more sharply pointed than any other oak. They are four to six inches long and two to four inches wide. In the autumn the leaves turn a deep scarlet. Leaves stay on all winter. (125,9)

12. SEED:

13. TWIG: slender; hairy at first, becoming smooth and green or later red-brown; buds egg-shaped, pointed, smooth. (12)

14. WOOD: is heavy, hard, strong, and usually knotty. It is light brown, with thin, dar[illegible]ored sapwood. It is sold and has the same uses as red oak, although it is generally not so good in quality. (5)

15. MATURITY: attains heights of 50 to 70 feet, with diameters up to 2 feet, but sometimes larger. (5)

16. HOST TO:

17. LARGEST KNOWN:

18. DISEASE POTENTIAL:

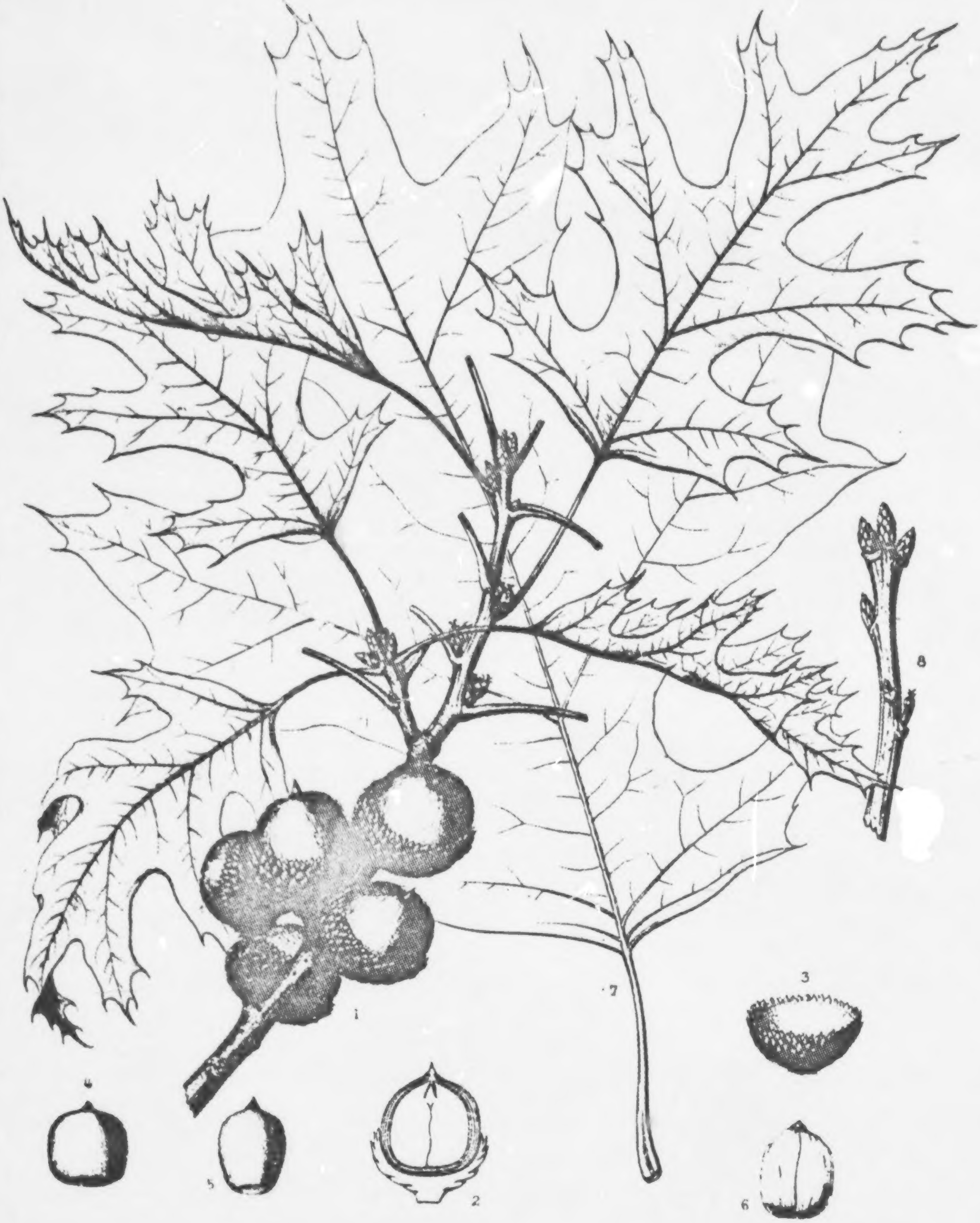
19. CURRENT USE: has become increasingly important as an ornamental tree. It also makes a good windbreak tree. Some use is made of the lumber for pallets and construction. (9,12)

20. HISTORICAL USE:

21. LEGEND:

22. ILLUSTRATION: 4, p. 47

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 260



QUERCUS VELUTINA, Lam.
Black Oak

Plate 13

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 261

TREE DATA SHEET

1. NAME: BLACK OAK /Quercus velutina Lam/ (12,5,6,8,9)

2. CLIMATE: southern part of the state. (12,9)

3. GROWTH RATE: rather slow (5)

4. LANDSCAPE PLACEMENT: frequently found on dry rocky ridges and upper slopes. (12,9, 8,5,6)

5. SOIL: usually found in gravelly soils. (8)

6. TOPOGRAPHY:

7. BARK: on young stems smooth, dark brown in color, soon bocoming dark gray to black, very rough, broken by deep furrows into thick ridges which are further divided by cross furrows; roughened especially at the base of trunk even in quite young trees; inner bark orange yellow in color, rich in tannin, yields a yellow dye. (12,8)

8. BUD: winter buds are cone-shaped sharp-pointed, from 1/4 to 1/2 inch long, covered with yellowish gray wool, clustered at end of twig. (8)

9. FLOWER: male and female flowers borne separately on the same tree; male catkins hairy, 4 to 6 inches long; female flowers red, on short, hairy stalks. (12,6)

10. FRUIT: an acorn, borne singly or in pairs, with or without stalks, maturing in autumn of second year. Nut--redish brown in color, from 1/2 to 3/4 inch long, enclosed about 1/2 its length in light brown cup. Meat--yellow, very bitter. (12,9)

11. LEAF: simple, alternate, from 4 to 10 inches long, from 3 to 6 inches wide, from 5 to 7 lobes, toothed, bristle tipped, separated by wide rounded clefts, extending over halfway to midrib; at maturity leaves thick, dark green in color and shining above, paler and woolly beneath (particularly along midrib). (12,8,9,6,5)

12. SEED:

13. TWIG: moderately stout; angled, dark brown to black, smooth when mature; buds large, egg-shaped, pointed, strongly 5-angled, covered with gray wool. (12,8,6)

14. WOOD: hard, heavy, strong, but is not considered so valuable as red oak.(6,5)

15. MATURITY:

16. HOST TO:

17. LARGEST KNOWN:

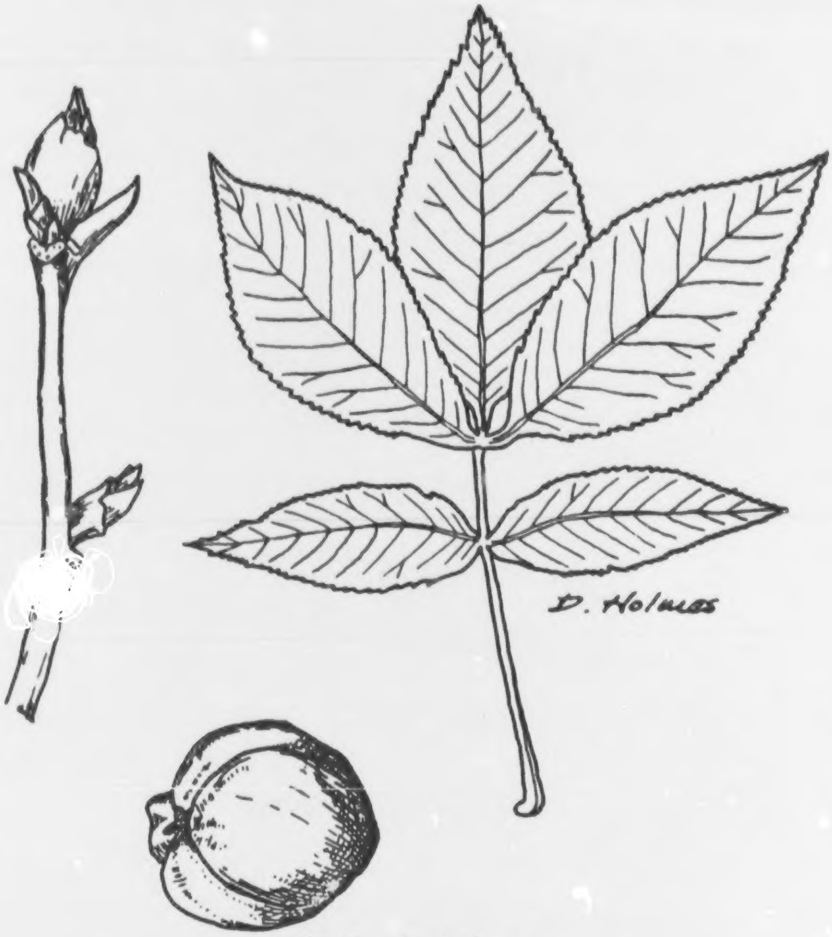
18. DISEASE POTENTIAL: in parts of the Missouri Ozarks, it has been found that one in every three black oak trees has no commercial value because of decay and insect damage associated with fire scars, branch stubs, and other wounds.(12)

19. CURRENT USE: large volumes are harvested. Lumbermen group black oak with the other red and black oaks. Lumber is used for crating, bridge timbers, railroad ties, flooring and rough construction. (12,9,5)

20. HISTORICAL USE:

21. LEGEND:

22. ILLUSTRATION: 14, plate 13



Shagbark Hickory

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
TREE DATA SHEET

Form # 263

1. NAME: SHAGBARK HICKORY /Carya ovata (Mill.) K. Koch/ (12,9,5,8,6)

2. CLIMATE: the most common hickory north of the Missouri River. (12)

3. GROWTH RATE:

4. LANDSCAPE PLACEMENT: forests, open fields, and along hedgerows. (8)

5. SOIL: grows best in rich bottomland soils, it also can be found throughout the state on rather dry upland sites. (12)

6. TOPOGRAPHY:

7. BARK: light gray in color, smooth, seamy, becoming shaggy with age and peeling off into long strips which are loose at both ends and attached in the middle, thus giving rise to the name "shagbark hickory." (12,5,8,6)

8. BUD: winter buds are large, ovate, blunt-pointed, with papery, dark brown, loose bud scales, the outer scales much darker, persistent through the winter; terminal bud usually more than 1/2 inch long. (8)

9. FLOWER: Male catkins in threes, 4 to 6 inches long, green, hairy; female flowers on short spikes. (12)

10. FRUIT: borne singly or in pairs; 1 to 2 1/2 inches in diameter: nut in a husk 1/4 to 1/2 inch thick; nut flattened, almost globe-shaped, with 4 prominent ridges, pale, tan in color; kernel sweet. (12,5,8)

11. LEAF: alternate, borne compound, 8 to 14 inches long, 5 leaflets; leaflets 4 to 6 inches long, elliptical, or broadest near the pointed tip; toothed; dark yellow-green and smooth above, paler and smooth to finely hairy beneath; stalk stout. (12,9,5,8,6)

12. SEED:

13. TWIG: stout; reddish-brown; buds at the ends of the branches egg-shaped (often narrowly so); outer bud-scales dark, narrow pointed; inner scales light, velvety. (12,8)

14. WOOD: very strong, close-grained, heavy, hard, tough and flexible.(5,6)

15. MATURITY: reaches a height of 70 feet and a diameter of 2 feet. (6)

16. HOST TO:

17. LARGEST KNOWN:

18. DISEASE POTENTIAL:

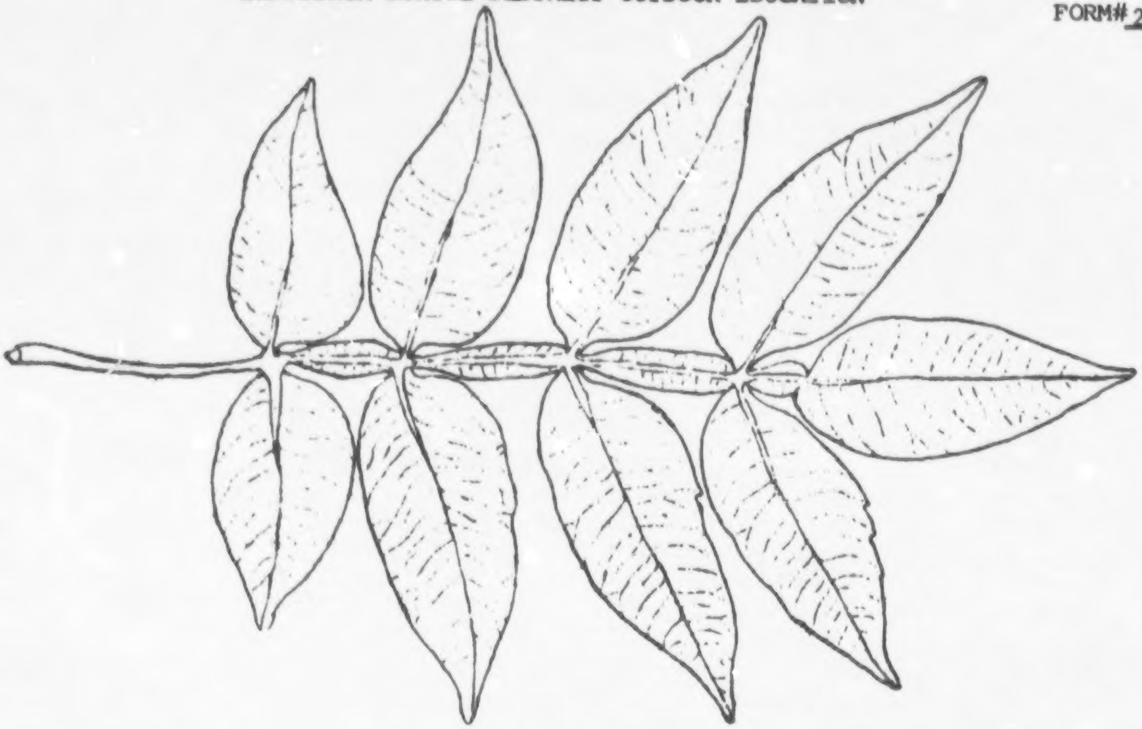
19. CURRENT USE: it was formerly used in the manufacture of agricultural implements, for making carriages and wagons, especially the spokes and rims of the wheels, and for axe and tool handles. Its principal use now is for pallets. (12,6)

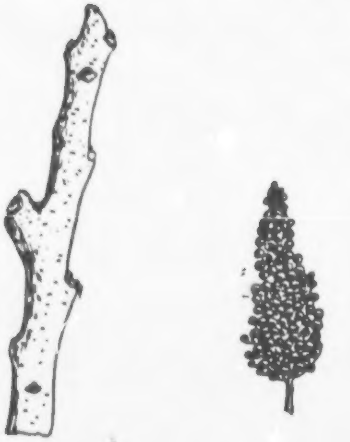
    Its nuts are so delicious that if squirrels were not deterred they would eat them all, and the tree would become extinct. That's why the shagbark has its own built-in picket fence. Strips of shaggy bark on its trunk look like the flat, curled leaves that stick out of a pineapple--only these are upside-down. Pointing downward and outward, they discourage hungry squirrels from climbing the tree. Even more amazing, the tree doesn't get this protection until it begins to bear nuts. The trunk of a young shagbark is smooth.

20. HISTORICAL USE: listed above.

21. LEGEND:

22. ILLUSTRATION: 4, p. 28





WINGED or SHINING SUMAC

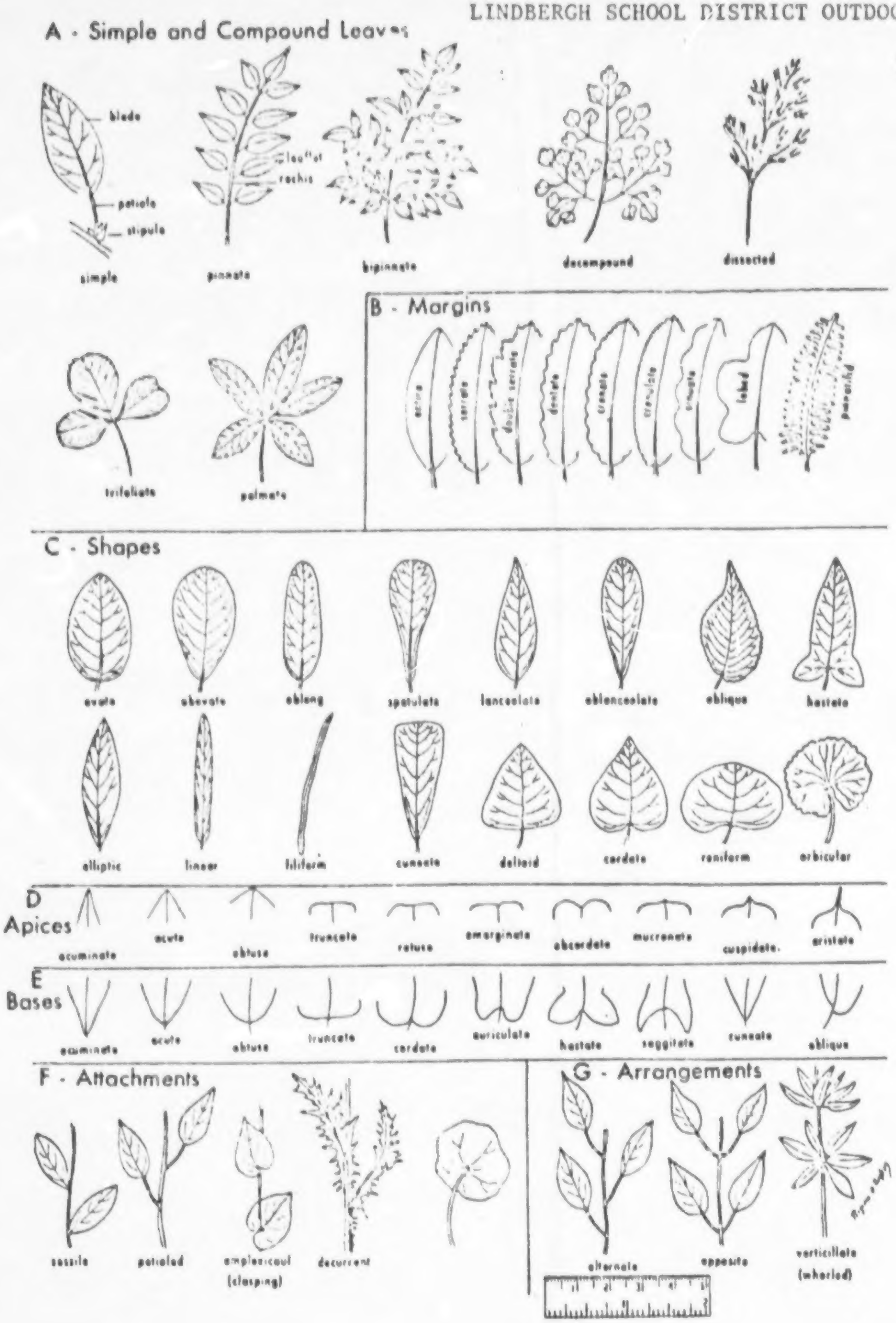
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form# 265

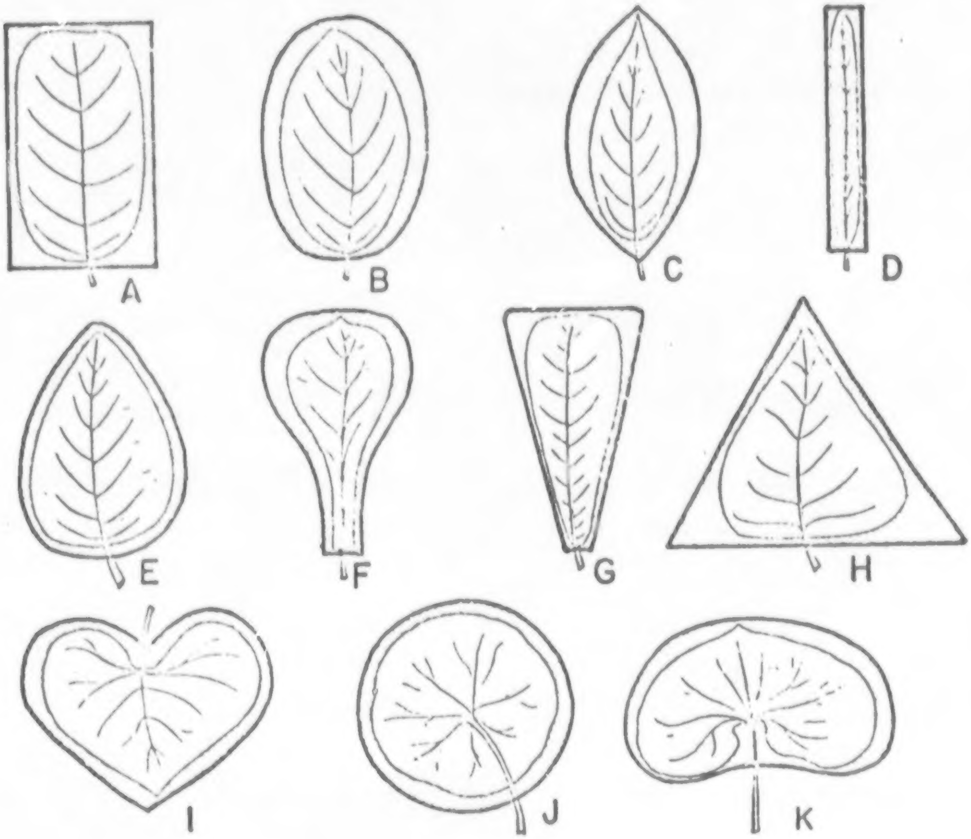
TREE DATA SHEET

1. NAME: Winged Sumac also Shining Sumac/Rhus copallina/
2. CLIMATE: warm, dry (in MO) (12)
3. GROWTH RATE:
4. LANDSCAPE PLACEMENT:
5. SOIL: dry hillsides (MO) (12)
6. TOPOGRAPHY: occupies some of the warmest, driest hilltops in MO, grows in thickets in old fields and praries (12)
7. BARK: thin; reddish-brown (12)
8. BUD: globe-shaped, rusty brown, hairy (12), small, round winter buds (5).
9. FLOWER: small and green, dense clusters at end of branches (12)
10. FRUIT: dense clusters with crimson hairs, individual fruit a globe-shaped berry. (12) Has an acrid taste.
11. LEAF: simple/compound, alternate/opposite, 9-21 leaflets; leaflets spear-shaped; edges of leaflets smooth or remotely toothed above the middle; dark green and shining above, paler and slightly hairy beneath. Leafstalk is edged with small, green, leaflike wings, thus the name winged sumac (12), smooth above, somewhat hairy beneath with a winged rachis, leaflets slightly toothed (5)
12. SEED: berry (12)
13. TWIG: stout, gray-brown or reddish brown. Often hairy (12) smooth and glabrous and have a thick, light brown pith. (5)
14. WOOD:
15. MATURITY: usually small shrub but occussionally develops as a tree 20-25' tall with a trunk diameter of 6-10". A few large spreading branches form a broad, flat, open head. (5)
16. HOST TO:
17. LARGEST KNOWN:
18. DISEASE POTENTIAL:
19. CURRENT USE: clusters of berries eaten by birds and other forms of wildlife. (12) Ornamental planting, desirable on terraces or hillsides.
20. HISTORICAL USE:
21. LEGEND:
22. ILLUSTRATION: 17
    5, p. 55

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM # 266


A - Simple and Compound Leaves
blade
petiole
stipule
simple
leaflet
rachis
pinnate
bipinnate
decompound
dissected
trifoliate
palmate
B - Margins
entire
serrate
double serrate
dentate
crenate
crenulate
sinuate
lobed
pinnatifid
C - Shapes
ovate
obovate
oblong
spatulate
lanceolate
oblanceolate
oblique
hastate
elliptic
linear
filiform
cuneate
deltoid
cordate
reniform
orbicular
D Apices
acuminate
acute
obtuse
truncate
retuse
emarginate
obcordate
mucronate
cuspidate.
aristate
E Bases
acuminate
acute
obtuse
truncate
cordate
auriculate
hastate
saggitate
cuneate
oblique
F - Attachments
sessile
petioled
amplexicaul (clasping)
decurrent
G - Arrangements
alternate
opposite
verticillate (whorled)



A. Rectangle-shaped
(oblong)

B. Oval-shaped
(elliptical)

C. Lance-shaped or spear-
(lanceolate)

D. Line-shaped
(linear)

E. Egg-shaped
(ovate)

F. Spatula-like or paddle-
(spatulate)

G. Wedge-shaped
(cuneate)

H. Triangle-shaped
(deltoid)

I. Heart-shaped
(cordate)

J. Round-shaped
(orbicular, peltate
attached)

K. Kidney-shaped or bean-
(reniform)

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TREE STUMPING

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 301

TREE STUMPING EQUIPMENT LIST

Teaching tools, supplies and equipment are available in the blue trailers. Areas are marked on outside of doors.

Teacher and student lesson plus forms are available in the upright boxes in Lodge.

It is suggested counselor and/or teachers secure the necessary forms before assembly of students.

Materials and equipment to be utilized on field trip can be carried by "Porters" after being secured by counselor and/or teacher from the trailer.

Upon completion of the activity please SEE that the equipment is returned to its proper place for the NEXT group's usage.

TREE STUMPING:

Clip boards

Pencils

2 bow saws
Miscellaneous stumps (sycamore, oak)

Hammer-nails

Oak boards

Mahogany boards

Hand lense

Oak - stump slice

Sycamore - stump slice

Student hand out:

Tree stumping Form# 302, 303, 304

Rotten log Form# 306, 307

Form # 302

LINDBERGH OUTDOOR EDUCATION

TREE STUMPING ACTIVITY

YOUR NAME ______________________ GROUP NUMBER __________

DATE ________________ AM _____ PM _____

CIRCUMFERENCE __________ DIAMETER __________ LOCATION OF STUMP ______________

Find a recently cut tree stump if possible. Record your observations with explanation of how you arrived at this conclusion.

______________________ 1. Can you identify the tree stump?

______________________ 2. What information do you think one must have to identify a tree stump?

____

______________________ 3. What kind of tree do you think this is?

______________________ 4. Is it a hardwood or softwood tree?

______________________ 5. Is it a deciduous or an evergreen?

______________________ 6. Is there a relationship between hardwood and deciduous trees?

______________________ Softwood and evergreen?

______________________ 7. What signs do you find of this tree having produced seed or fruit?

____

______________________ 8. How do you think this tree is propagated?

____

____

______________________ 9. Did it grow from a single tree or a clump?

______________________ 10. How old was this tree when it was cut?

______________________ 11. How long ago do you think it was cut?

______________________ Why?

______________________ 12. Why do you think it was cut?

______________________ (Use your imagination)

____

______________________ 13. Is it possible to tell if the tree was cut before or after it died?

Form# 303

TREE STUMPING ACTIVITY

1) Single bit axe	2) Double bit axe
3) Chain saw	4) Froe
5) Wedge	6) Cross-cut saw
7) Pruning shears	8) Clippers
9) Sledge Hammer	10) Hatchet

14. In what direction did the tree fall?

15. Here are a list of tools used by woodsmen.
    a. Check with an X the tools you know when you see them.
    b. Circle the ones used to fell this tree.

16. How many workmen do you think were needed to fell this tree?

17. If you were one of the woodsmen what would your work have been after you felled the tree?

18. Now find the ring which shows when the tree was your age.

19. Did the tree grow more rapidly that year than in the year which would show:
    a. your fifteenth birthday ?
    b. your twenty-fifth ?
    c. your thirty-fifth?

20. In which ten year period did the tree show the most growth?
    What could have been some reason?

21. Was the tree perfectly round?
    (Measure radius and diameter at several points)

22. Find the circumference of the tree by using the formula Pi x Diameter . $\pi = 3\ 1/7$ or 22/7

    Then find the circumference by measuring with a tape or string. Compare the two answers.

    Show your work.

23. If the tree was not perfectly round give your reasons why it was not.

    Check for damage.

24. Did you find signs of plants or animals living in or on the stump?

Form # 304

TREE STUMPING ACTIVITY

25. If the top of the tree is here what signs of animal or plant life do you find in it?

26. How did this tree help in the ecology of the forest?

27. What evidence do you find of its contribution to conservation?

28. Do you think other trees around it are of the same age?

    Can you identify them?

29. Is this tree of a kind that might have been cut for lumber? If so, what might the lumber have been used for?

30. Would you choose this tree to be in your yard?

    Why or Why not?

31. Had it been in the yard of your family home, which of your ancestors would have seen this tree as a sapling?

32. Have someone take your picture at the tree stump.

    (Get a good close-up if possible)

ROTTEN LOG

Form # 306

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

A ROTTEN LOG

Log exploring is fun, you can nearly always count on seeing something new or different.

Let's see what you can find. Remember the kinds of living things you find depends on where the tree grew, how long it has been dead, the climate of the area, the season, the species of tree, and what else?. . . . .

First kick, rattle, and poke the log, being on the alert for animals or snakes. Record what you see·

Name	Quantity	Type of Home

(1) Is the bark still on the tree? ____________________

(2) If yes, what species was the tree? ____________________

(3) How tall did it grow? ______________ approx. ______________

(4) How old? __________ You may need to estimate, because some annual ring cells may have decomposed. Now find the tree stump and count. __________ Compare______ Were your answers the same?____________________

Tell me. Are you a good detective? ____________________

(5) Did the tree die naturally or by other means? How can you tell? ____________________
____

Now closely examine the outside. List the plants:

Name or Type	% Area Covered

Let's go inside, or under the bark and see the insects and bugs. Catch one if you can and put it in a jar for identification later.
List the rest:

Name	Number Found	Any eggs	Any larva

Form # 307

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

A ROTTEN LOG

Did you find a tunnel? __________ Where does it go? ______________________________

Who travels that trail? ______________________________

Can you find where the soil ends and the rotten log begins? ______________________________

Can you always - why NOT? ______________________________

With all these living things you found in and around a dead log - it's a wonder the log doesn't crawl away.
List ways this log is useful: ______________________________
____
____
____

What surprises will the next rotten log hold?

CAUTION:

BE SURE
to replace all disturbed material so that decomposition and that home life can continue!

LOOK

SEE D

ME

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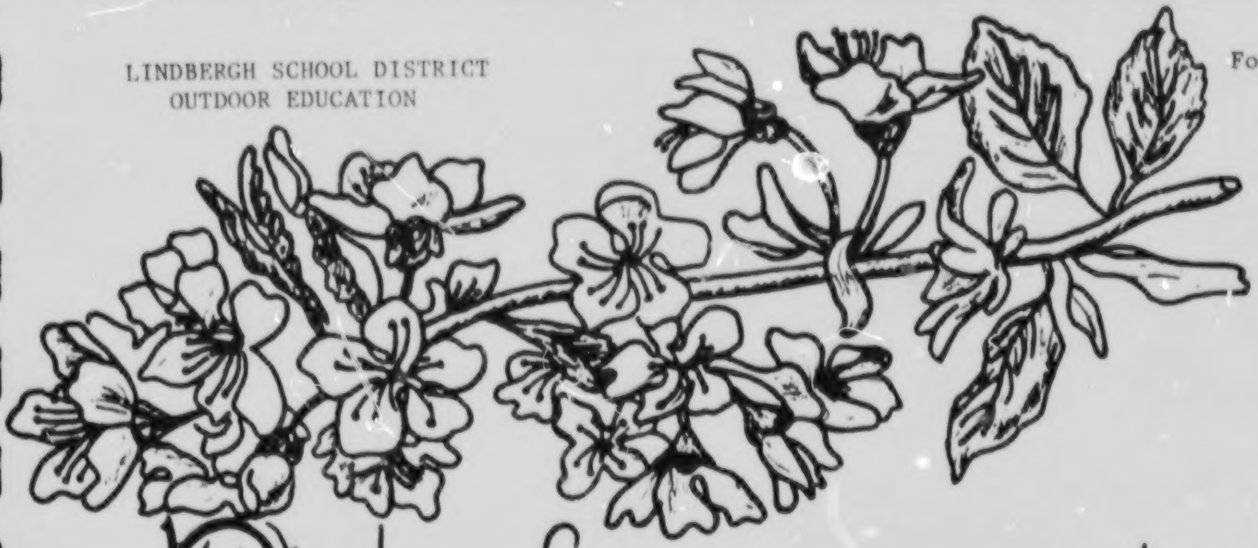
Form # 310



Pick if you must
one flower face,
If nine more blooms
are left in place.
Two feet square
must hold that many,
Otherwise look,
but don't pick any.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
PROGRAM

Form # 311

WILDFLOWERS

The secret of why some plants bloom in the spring, some in the summer and some in the fall is one of the mysteries of nature. Tennyson expresses the issue in these lines:

> Flower in the crannied wall
> I pluck you out of the crannies.
> I hold you here, root and all, in my hand
> Little flower - but if I could understand
> What you are, root and all, and all in all,
> I should know what God and man is.

If we knew the answer to the above question, we would as Tennyson suggests, know the answer to the riddle of the universe.

STOP
LOOK
SEE D
  ME

This booklet will present all who will STOP, LOOK, SEE, with an opportunity to become better acquainted with Nature's finest; "the wild flower"

The adding of "D" to see allows those who follow in days, weeks or years, the equal opportunity of seeing dew drops in the early morning on the petals of the freshly opened flower, a butterfly exercising or a bee hovering.

Do, STOP, LOOK & SEE

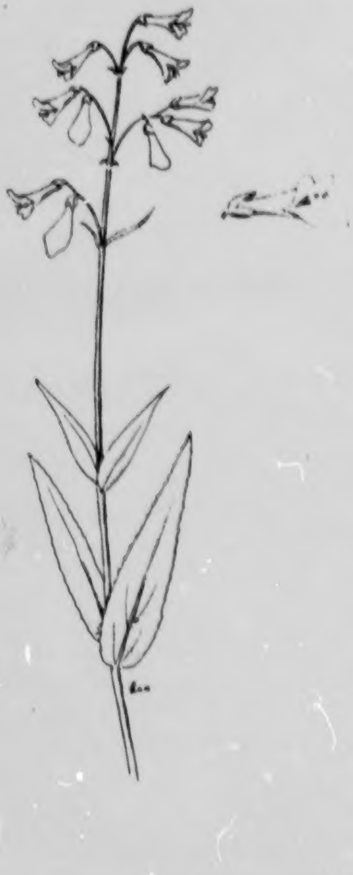
Take nothing but pictures

Leave nothing but footsteps

Form # 312

BEARDS TONGUE (Pentstemon digitalis)

OTHER NAMES	.. none
FLOWER	.. white or gray, one of the 5 stamens looks like a "hairy tongue". The flower is tube shaped
LEAF	.. opposite, lance-shaped, without stems, with widely spaced teeth
BLOOMING TIME	.. May
HABITAT	.. borders of woods, prairies, fields, along roads
UNUSUAL FACTS	.. hairy tongue probably used to attract insects . seeds 2 x 3 mm- 250 American species, 55,000 per ounce
SOURCES	.. 12, pp 67,68 8, pp 38,233 .. 21, pp 293,546
PICTURE	.. 18, p 128

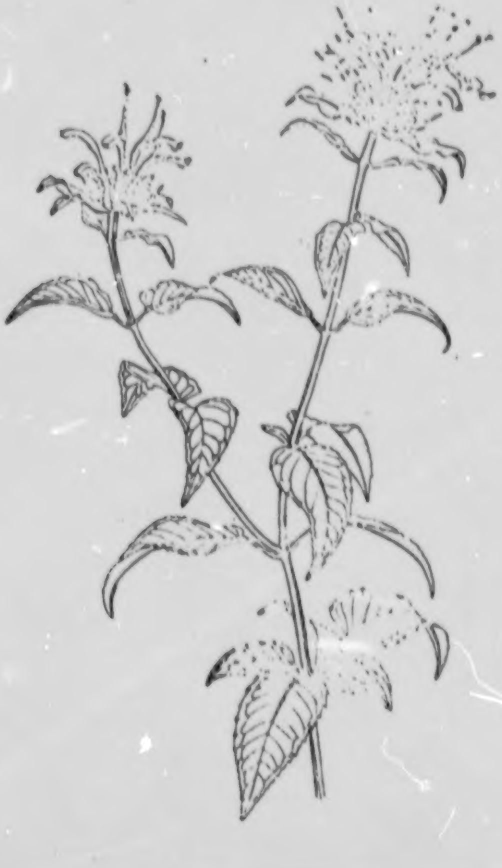


LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 313

BERGAMOT (Monarda russeliana)

OTHER NAMES	. . Horsemint, Bees Balm, Oswego
FLOWER	. . Clustered on top of the stalks, usually one cluster for each plant. Colors are either whitish with purple spots or pale lavendar. Below clusters are large, leaf-like bracts which often have purplish color.
LEAF	. . Saw-toothed, opposite, purplish stem
BLOOMING TIME	. . late April to June
HABITAT	. . Rocky dry open woods, glades, usually in acid soils
UNUSUAL FACTS	. . All green parts of the plant are pleasantly aromatic. The Monarda is a great attraction for butterflies. The name, Monarda, was given the genus in honor of a French doctor, Nicolas Monardes, who in the early days of this country wrote several tracts on the merits and uses of some of the American medicinal and useful plants. The Indians used Oswego tea as an infusion to induce sweating in incipient colds, and the pioneers followed their example in this as well as in uses of several other plants. Monarda oil extracted from fistulosa as well as from other species of the genus was once used as a perfume for hair oil.

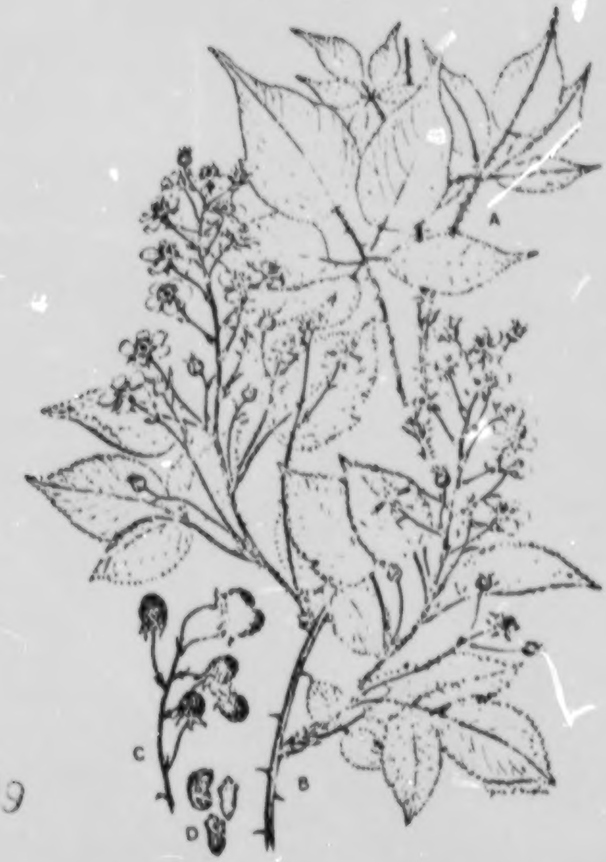


SOURCE	. . 5, 8, pp. 108, 229 12, pp. 76, 78
PICTURE	. . 5,

BLACKBERRY (Rubus frondosus and Rubus allegheniensis)

Form # 314

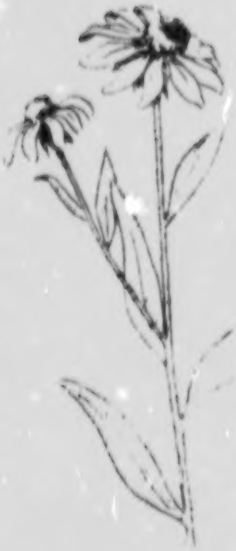
OTHER NAMES	. . none
FLOWER	. . white with 5 petals
LEAF	. . alternate with 3-5 coarsely serrate leaflets
BLOOMING TIME	. . early May
HABITAT	. . open woods, old fields to low moist areas and stream bottoms
UNUSUAL FACTS	. . edible provides food and cover for many wild animals low shrubs with prickly stems petals fall off leaving center of flower to develop into the berry
SOURCES	. . 12, pp 63,64 18, p 213
PICTURE	. . 19, p 225



Form # 315

BLACK EYED SUSAN (Rudbeckia hirta)

OTHER NAMES	. . Cornflower
FLOWER	. . One flower to a stalk, eye is deep brown or purple, not black. The petals are yellow orange or yellow. The flowers are 2 to 3 inches across, with from 10 to 20 petals.
LEAF	. . simple
BLOOMING TIME	. . May to October
HABITAT	. . open woods, fields, along roads
UNUSUAL FACTS	. . there are 90 species, they are important in winter as food for deer Rudbeckia is named for Professor Claus Rudbeck of Sweden who had as a pupil Linnaeus, the Swedish botanist who gave us our system of naming plants and named many of them. Black-eyed Susan is native to dry prairies of the west. Introduced into Maryland many years ago with a shipment of hay. In 1918 it became the state flower for Maryland, having colors the same as in the state flag.



SOURCE	. . 8, pp. 68, 250 18, p. 142 12, p. 110
PICTURE	. . 9, p. 11

Form # 316

BLUE-EYED GRASS (Sisyrinchium campestre)

OTHER NAMES .. Prairie Blue-eyed grass

FLOWER .. small, blue, 6 pointed stars on flat, two sided stem

LEAF .. grass-like and stand stiff and upright

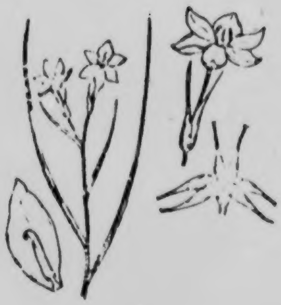
BLOOMING TIME .. April to June

HABITAT .. Rocky open woods and glades, in grassy places on embankments

UNUSUAL FACTS .. none

SOURCE .. 8, pp 138,171
12, pp 46, 47

PICTURE .. 13, page 43, figure 77

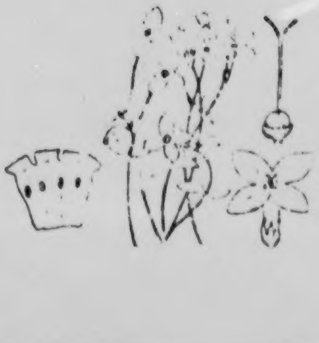


LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 317

BLUETS (Houstonia pusilla)

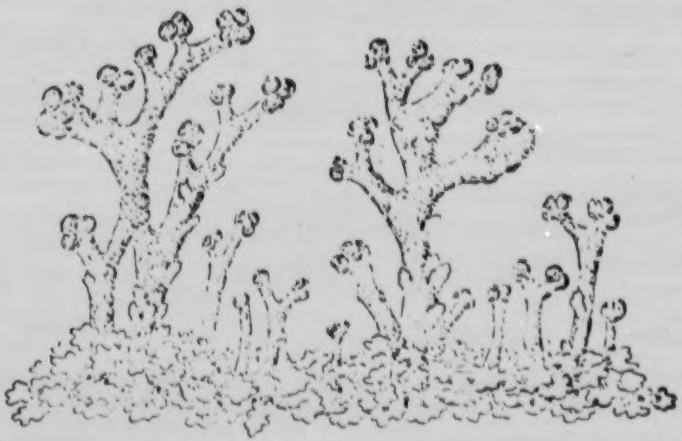
OTHER NAMES	. . Venus' Pride, Eye Bright, Angel Eyes, Nuns, Innocents, Quaker Ladies, Quaker Bonnets, Star Violet, Little Washer-woman, Blue-eyed Babies, Wild-For-Get-Me-Nots
FLOWER	. . tiny blossoms, about ½" across, have four pointed lobes, look always skyward, and are purple or deep violet-purple, and sometimes white with a yellow throat
LEAF	. . both basal and on stems
BLOOMING TIME	. . March to April
HABITAT	. . In acid soils of fallow fields and waste places distribution in Ozark region, south east and south central
UNUSUAL FACTS	. . A reason for listing this flower by its botanical name, even though they are not imaginative; this one is taken from the name of an English botanist.
SOURCES	. . 8, p 238 12, p 13
PICTURE	. . 13, p 136 fig. 317



Form # 318

BRITISH SOLDIER LICHEN

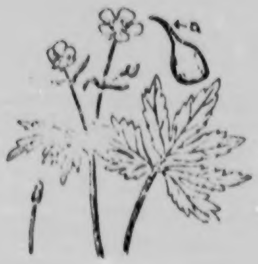
OTHER NAMES	. . Red Crest Lichen
FLOWER	. . no flower, but the stalks have a globular red tip
LEAF	. . none, flattened thallus scales are greenish gray, branched stalks
BLOOMING TIME	. . none
HABITAT	. . on soil or decayed wood
UNUSUAL FACTS	. . named for red color of British soldier uniforms
SOURCES	. . 25, p. 99
PICTURE	. . 23



BUTTERCUP (Ranunculus septentrionalis) Form # 319

OTHER NAMES	Swamp or Marsh Buttercup; Crowfoot
FLOWER	5 petals up to 1" across with many stamens and pistils. "Buttercup" is for the shiny, buttered appearance yellow blossom
LEAF	Deep green, divided into 3 deeply cut lobes with large teeth. Leaflet may have their own stem or only the central one is stemmed
BLOOMING TIME	April to June
HABITAT	Along streams, rich moist slopes, ravines
UNUSUAL FACTS	Ranunculus name means "little frog" because frogs like streams and marshy places and so do buttercups.

SOURCES	8, pp 62,179 12, pp 25-27
PICTURE	13, p 74, figure 161



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Form # 320

BUTTERFLYWEED (Asclepias tuberosa)

OTHER NAMES .. Milkweed

FLOWER .. pink, greenish, or reddish orange, appears in late spring and summer. Seed pod splits on one side showing many silk-tufted seeds

LEAF .. opposite

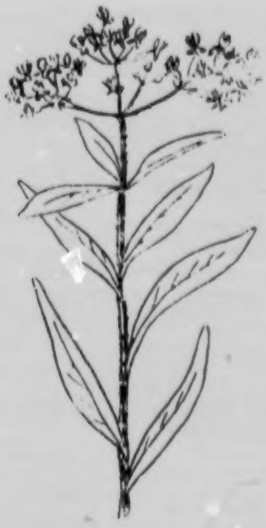
BLOOMING TIME .. late May to September

HABITAT .. fields and dry glades, waste places

UNUSUAL FACTS .. poisonous to livestock in large amounts. humans cannot eat it, quail and pheasants eat the seeds

cultivated and grown during World War II, seeds and down were used to stuff lifejackets

SEED: thin, brown, pear shaped, 5 x 7mm, tuft of white hairs 20 mm at top for distribution by the wind



SOURCES .. 8, [illegible] 72,220
18, page 82
21, page 290
.. 24, April 8, 1973

PICTURE .. 9, page 12

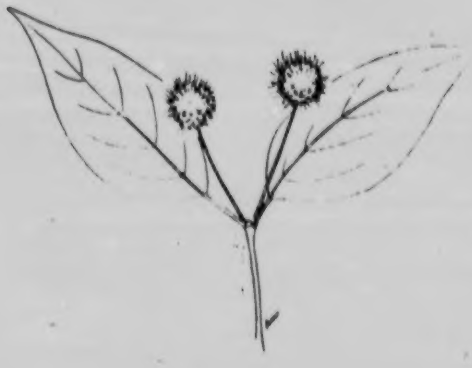
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 321

BUTTON BUSH (Cephalanthus occidentalis)

OTHER NAMES	.. none
FLOWER	.. ball-shaped clusters terminally on branches; tiny flowers are 5 lobed, tubular, with protruding styles - yellowish clusters
LEAF	.. opposite, oblong elliptical, pointed to 6" long
BLOOMING TIME	.. June to August
HABITAT	.. borders of sloughs, lakes, rivers, river bottoms
UNUSUAL FACTS	.. ducks and pheasants eat the seeds. seeds remain in masses on bushes for some time, creating the picture of a "Buttonbush"

SOURCES	.. 8, pp 50, 238
PICTURE	.. 18, page 178



R

Form # 322

CATTAILS (Typha)

OTHER NAMES . . none

FLOWER . . The central stem bears the cattail, a tightly packed cylinder of innumerable flowers. The lower part is made up of flowers with pistils only intermingled with dark brown bristles which give the feeling and appearance of plush to the spike. The upper part has flowers with stamens, mixed with long hairs, and after the flowering season this part withers and gradually drops off, leaving the fruiting lower part as the "cat-tail" which lasts through the autumn and winter.

LEAF . . There are many leaves, as much as 6 feet tall, each an inch or less wide.

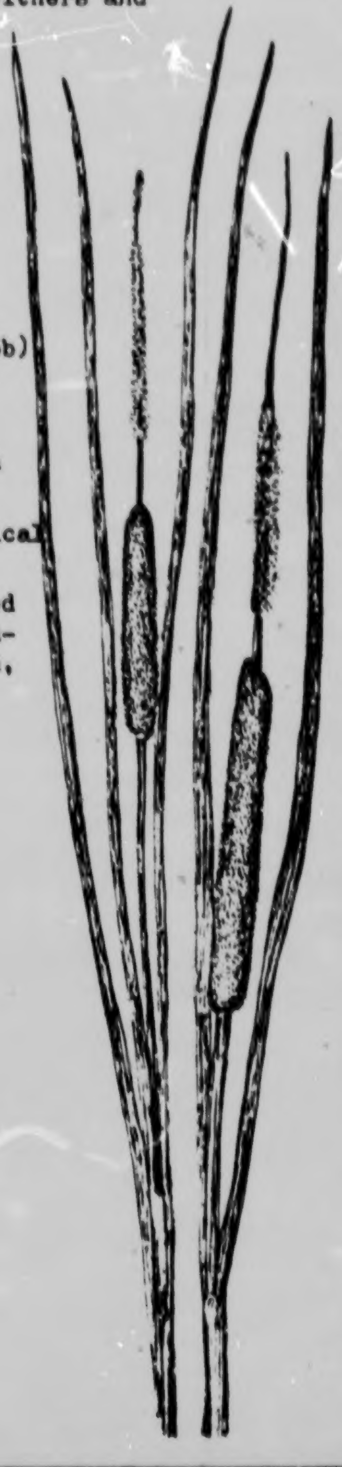
BLOOMING TIME . .

HABITAT . . in marshy places

UNUSUAL FACTS . . roots and young stems edible(cattail on cob) Cut a few spikes just as they appear from the leaves, before the pollen develops; boil them several minutes, and serve with butter and salt. Pull off the "meat" with your teeth, leaving the hard white core.

Typha is the old Greek name and the botanical name.

The taste is like artichoke and hard-boiled egg. Very nourishing. Seed of cattail, instead of being sensitive to lack of oxygen, germinates only when supply of oxygen is reduced.



SOURCE . . 12, pp. 88, 89
19, p. 10
17, March, 72
21, p. 103

PICTURE . . 19, p. 11

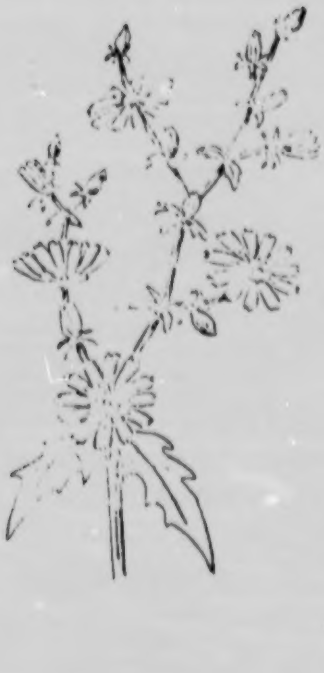
Form # 323

CHICORY (Cichorium intybus)

OTHER NAMES	. . Succory, Blue Sailors, Coffee Weed
FLOWER	. . Light blue, rarely white are strap shaped and toothed at the end. They are actually tubes that are split open.
LEAF	. . Resemble Dandelion leaves with prominent center vein, deep lobes and often, spines
BLOOMING TIME	. . May to October
HABITAT	. . fields, pastures, waste ground, road sides
UNUSUAL FACTS	. . The plant comes to us from Europe, where it is considered no more of a weed than sweet clover is in this country. It is used as a hay crop them Chicory is also cultivated for its roots and early shoots. The roots are dried and used as a substitute for and as an adulterant of coffee. They are used as a vegetable, too. The shoots are forced and blanched for salads. There are 27,000 seeds per oz.

SOURCE . . 21, p. 545
5,
8, pp. 50, 257
12, p. 111

PICTURE . . 9, p. 16



LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 324

RED CLOVER (Leguminosae)

OTHER NAMES . . None

FLOWER . . Purple

LEAF . . alternate, trifoliate

BLOOMING TIME . . summer

HABITAT . . found in fields, pastures, and waste ground

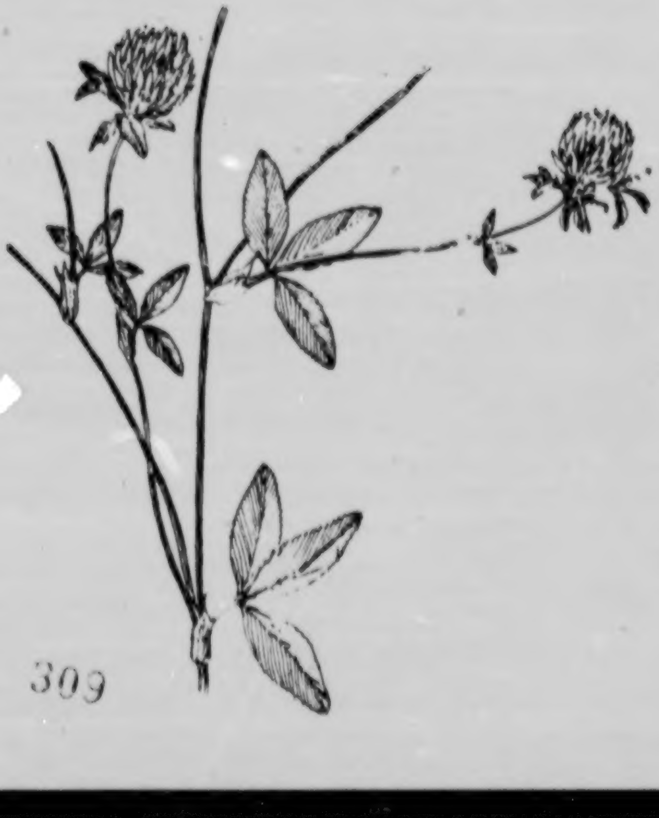
UNUSUAL FACTS . . important forage for livestock

The red clover is one of the earliest economic plants cultivated in agricultural countries since antiquity. Highly esteemed not only by the Greeks and Romans, but also by the Celts and Druids, it was always a symbol of good and evil. A five leaf clover was considered as unluck; a four-leaf was a good luck charm, which it is still in our time, according to the old folk-rhyme:

One leaf for fame,
And one for wealth,
One for a faithful lover,
And one to bring you
   glorious health
Are in a four-leaf clover.

SOURCES: . . 18, p. 156
7

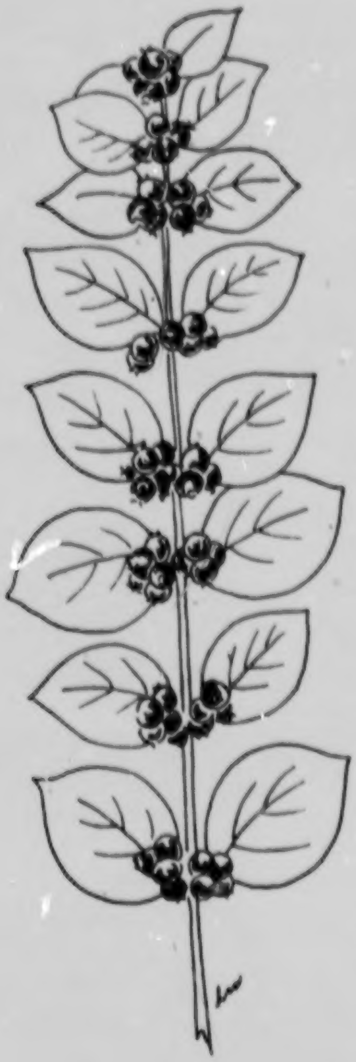
PICTURE . . 18, p. 156



Form # 325

CORALBERRY (Symphoricarpos orbiculatus)

OTHER NAMES	.. Buckbrush, Indian Currant
FLOWER	.. small, greenish in dense clusters, the fruit a reddish berry
LEAF	.. simple, opposite, oval to broadly elliptic
BLOOMING TIME	.. summer
HABITAT	.. pastures, open woods, clearings, along streams bank or low ground
UNUSUAL FACTS	.. third most important deer food in Missouri. Sometimes planted for erosion control and excellent wildlife cover 3400 seeds per ounce
SOURCES	.. 18, page 217 .. 21, page 97
PICTURE	.. 18, page 217



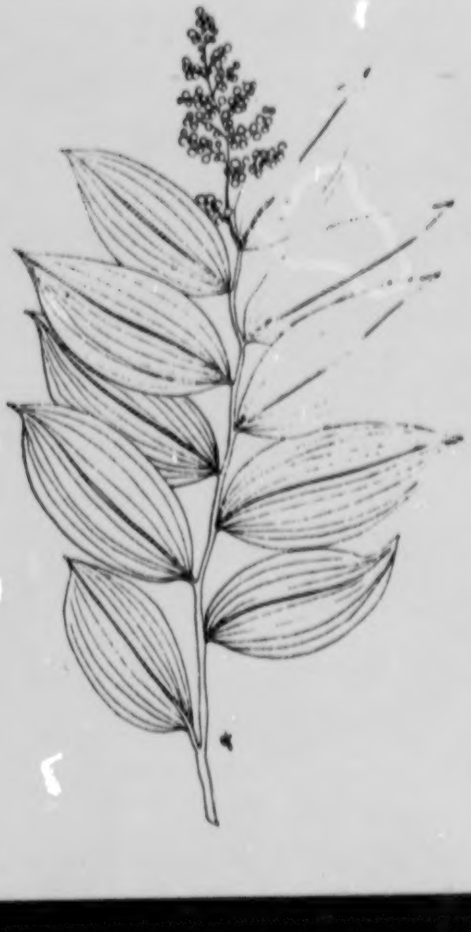
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 326

FALSE SOLOMON SEAL (Smilacina racomosa)

OTHER NAMES	.. False Spikenard
FLOWER	.. creamy white flowers grow in a plume like cluster at the top of the stalk
LEAF	.. leaves, almost without stems, are alternate along the stalk, lance shaped, conspicuously parallel veined
BLOOMING TIME	.. May to June
HABITAT	.. rich woods
UNUSUAL FACTS	.. part of the lily family

SOURCE	.. 8, pp 38, 168
PICTURE	.. 18, p 149



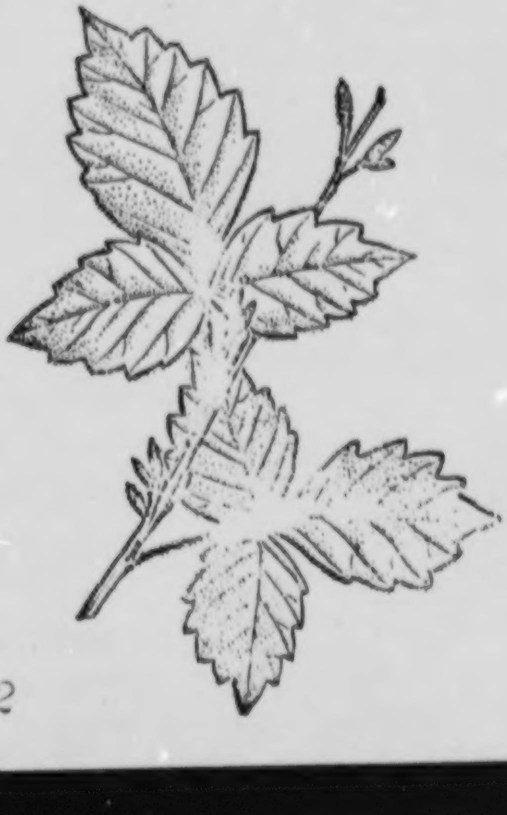
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 327

FRAGRANT SUMAC (Rhus aromatica)

OTHER NAMES	.. none
FLOWER	.. red fuzzy berries
LEAF	.. 3 divided leaves - leaves and twigs pleasantly aromatic
BLOOMING TIME	.. from May on
HABITAT	.. in open woods
UNUSUAL FACTS	.. low shrub, good for home planting

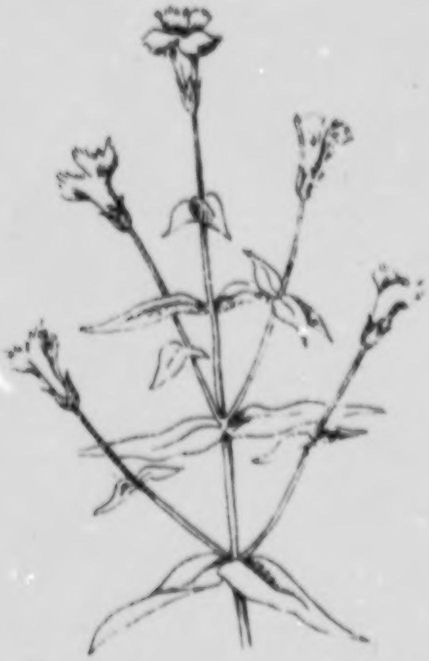
SOURCE	.. 8, page 203
PICTURE	.. 15, page 163



Form # 328

GENTIANS (Gentiana andrewsii)

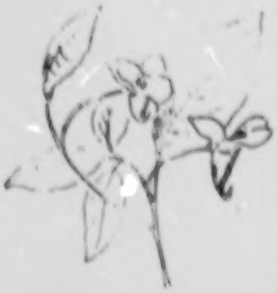
OTHER NAMES	. . Closed Gentian
FLOWER	. . bottle or club-shaped, to 2" long, which never open; grow in clusters; vary in color from violet-blue to deep wine red
LEAF	. . ovate lance shaped with parallel veining, in a cross shaped arrangement, on short stems
BLOOMING TIME	. . August to October
HABITAT	. . found in wet woods where limestone is present; also along streams, below bluffs, and in ravines distributed south of the Missouri River
UNUSUAL FACTS	. . Gentius, king of Illyria (180 B.C) who was the first to discover the virtues of this plant. A Christian legend tells of Ladislaus, king of Hungary, who shot an arrow into the air with a prayer that it would lead him to a cure for the plague which was raging among his people. When he found the arrow it had lodged in a gentian plant. Gentian is still used as a medicine. The Swiss mix it with wine to relieve the fatigue of travel, and they use the bitter root in making beer and a liqueur. The Indians of New England used the root for the stomach, both as a stimulant to the appetite and an aid to digestion. It is also used in cases of intermittent fevers and as an antidote for poisons.



SOURCE	. . 8, p. 218 22,
PICTURE	. . 9, p. 15

JEWELWEED (Impatiens capensis)

OTHER NAMES	. . Spotted touch-me-not, Lady's Eardrop
FLOWER	. . each hang from a slender stem; orange-yellow flowers, dark leaves, resemble cornucopias with the end of the horn turned under.
LEAF	. . soft, deep bluish green, alternate, egg-shaped, coarsely toothed
BLOOMING TIME	. . late May to October
HABITAT	. . damp low woods, near streams, swampy areas, statewide distribution
UNUSUAL FACTS	. . The name comes from the fact that mature seed pods open when touched to explosively scatter the seeds. The seeds are edible, tasting like black walnut meats. It is called jewelweed because rain clings to the leaves in jewel-like globules, or because the blossom hangs like a pendant or jewel. It is one of the standbys which every child in summer camp learns to recognize. They are taught that it is an antidote for poison ivy, and some claim it will also take the sting out of mosquito bites and nettles.
SOURCES	. . 12, pp 90,91
PICTURE	. . 9, p 12



LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 330

LOBELIA (Lobelia siphilitica)

OTHER NAMES . . Bellflower and Blue or Great Lobelia

FLOWER . . colors: light blue-violet or dark blue, or purple, lavender and nearly white

LEAF . . alternate, light green, narrowly lance-shaped with fine teeth widely spaced, or no teeth at all

BLOOMING TIME . . August to October

HABITAT . . wet areas, along streams, in ditches, in low wet woods

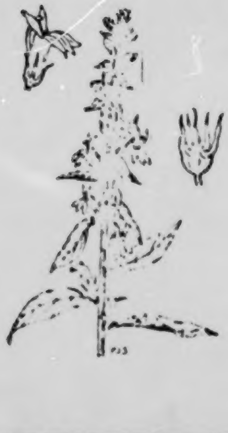
UNUSUAL FACTS . . The plant is a poison. Lobelia is named after Matthias de l'Obel, a Flemish herbalist who lived from 1538 to 1616. The herbalists were forerunners of the botanists, being chiefly concerned with the medicinal uses of plants.

L. syphilitica were used as love medicine. The ground-up roots were put into the food of a quarrelsome pair, unbeknownst to them; partaking of it together caused them to stop quarreling, insured a happy marriage, and forestalled divorce. The Iroquois also regarded lobelia root as a potent love medicine. Chippewa Indian medicine-men used lobelia as an emetic.

700,000 seeds per oz.

SOURCE . . 22, p. 63
8, p. 243
12, p. 107
21, p. 548

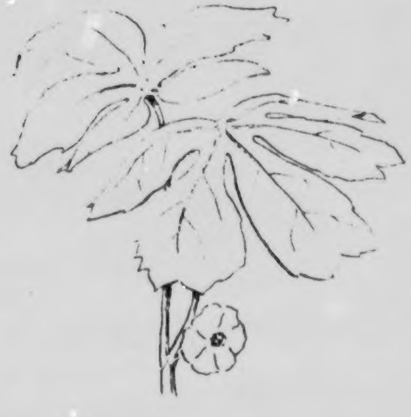
FLOWER . . 11, p. 110, fig. 285



Form # 331

MAY APPLE (Podophyllum peltatum)

OTHER NAMES	. . Mandrake, Wild Lemon, Hog Apple
FLOWER	. . opens in late April, single white flower
LEAF	. . palmate
BLOOMING TIME	. . March to May
HABITAT	. . low moist or dry open woods
UNUSUAL FACTS	. . appears in groups the fruit ripens in August the leaves, stems, roots and unripened fruit are poisonous. This was the powerful suicide root of the Huron and Iroquois Indians. The ground or chopped root was used by the Meskwaki Indians as a poultice to draw poison out of snake-bite, and also for rheumatism. Baking the root, however, rids it of the lethal podophillin, and a decoction of the baked root made a safe cathartic or emetic, and was sometimes given for dropsy.
SOURCES	. . 8, p 182 22, p 695 12, p 42
PICTURES	. . 9, p 10



Form # 332

MULLEIN (Verbascum thapsus)

OTHER NAMES . . Flannel Plant, Velvet leaf; Velvet dock; Torches, Hedge taper Candlewicks

FLOWER . . Light yellow, 5 lobed, sweet scented with 5 stamens. Flowers on end of stalk in a cluster.

LEAF . . Basal leaves, often 12" long - oblong, tapering at the base into winged stems. An abundance of hair on the leaves was scraped off and used by peasants to make their candlewicks.

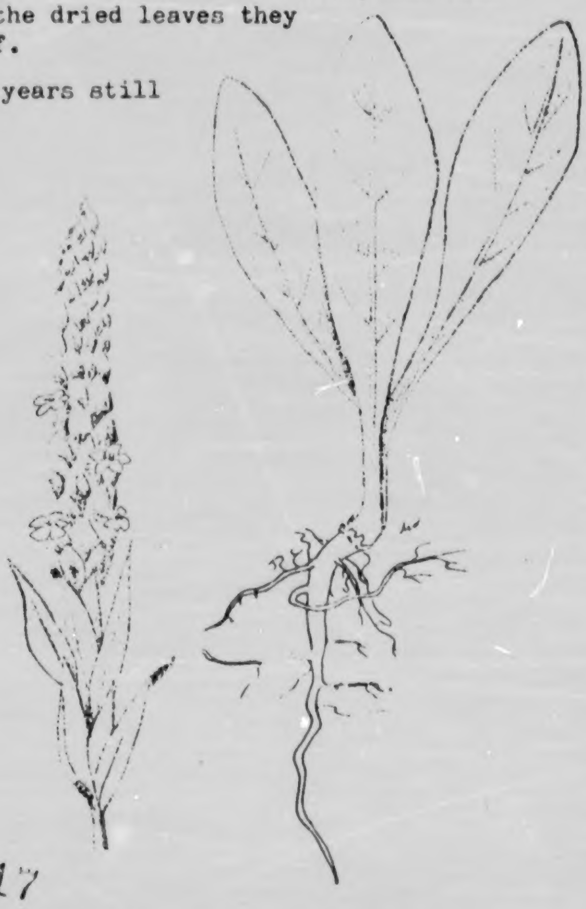
BLOOMING TIME . . late May to September

HABITAT . . dry fields, waste ground, along roads and railroads

UNUSUAL FACTS . . brought from Europe, the entire plant has a grey look because leaves and stem are covered with fine hair, thus Flannel Plant Yields a yellow dye.

The name mullein is not descriptive in the least. It is a corruption of the Latin name Mulandrum, from which comes Melanders, meaning leprosy, and it refers to the fact that the mullein at one time was thought to be a remedy for leprosy. The weed is found all over the world, and from time immemorial has been among the medicinal plants. It produces a mild narcotic. Its tea has a sedative effect, and when asthma patients smoke the dried leaves they are said to find relief.

Seeds in soil after 70 years still germinable.



SOURCE . . 5,
8, p. 76, 232
21, p. 96

PICTURE 18, p. 157

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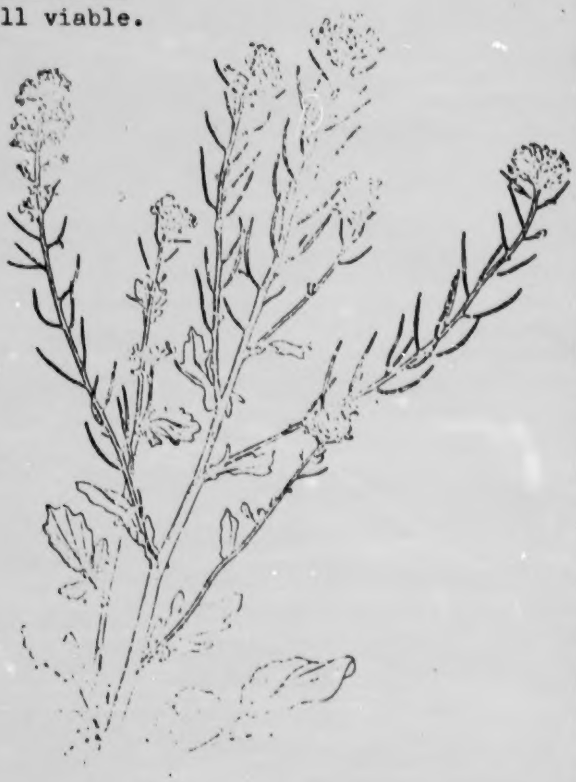
Form # 333

MUSTARD (Brassica, Nigra)

OTHER NAMES	. . Black mustard
FLOWER	. . Fragrant, yellow flowers open in April on top of stalks the flowers are small and the petals form a cross.
LEAF	. . fleshy, irregularly lobed, closely related to cabbage
BLOOMING TIME	. . April to November
HABITAT	. . fields, waste ground, along roads
UNUSUAL FACTS	. . Brassica, Latin for cabbage, nigra, for black Pliny named 40 remedies in which mustard was the chief ingredient. It is mentioned several times in parables in the Bible (Matthew xvii, 20. Luke xvii, 6) among the rabbis "a grain of mustard seed" was a symbol of something very small. In Hindu mythology, magic powers are attributed to mustard seeds, eg. enabling one to travel through the air, turning one's enemy into a mare, revealing secret places and diseases. North American Meskwaki Indians used the ground-up seeds as a snuff to cure cold in the head. The Shinnecock and the Mohegans bind leaves of the plant to the skin to relieve toothache or headache; the former also use mustard in a poultice for body pains. After 40 and 50 years, but not after 60 years, seeds in soil still viable.

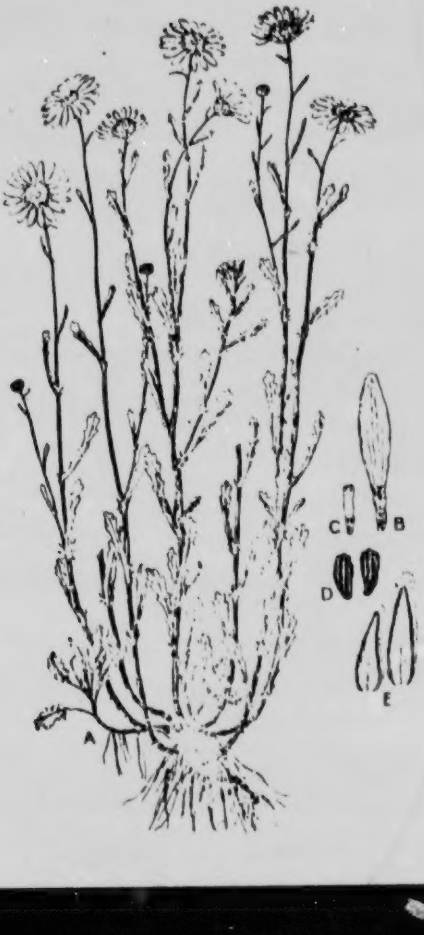


SOURCE	. . 8, pp. 58,184 12, p. 35 22 21, p. 96
PICTURE	. . 5

Form # 334

OX-EYE DAISY (Chrysanthemum leucanthemum)

OTHER NAMES	. . none
FLOWER	. . large flower-heads, with white ray-flowers and a yellow disk
LEAF	. . 2 kinds - basal leaves on stalks are spoon-shaped and lobed, while alternate leaves along the stem are without stalks, narrow, with widely spaced teeth or lobes.
BLOOMING TIME	. . May to August
HABITAT	. . Fields, meadows, roadsides
UNUSUAL FACTS	. . Chrysanthemum (Greek for golden flower) leucanthemum (Greek for white flower) - a near relative of the chrysanthemums. English progenitors thoughts of the Ox-eye daisy are reflected in the names they gave it: White weed, Dog daisy, Bull daisy, Poorland daisy, Maudlin daisy, Butter daisy (meaning it spoiled the butter) and moon penny. The whole plant and the flowers are used in tea. It was, and perhaps still is used as a medicine for whooping cough and for cases of asthma and nervous excitation as well. The weed can be made into lotions and used externally for wounds and bruises.



SOURCE	. . 8, pp 42, 255 5,
PICTURE	. . 19, p. 389

Form # 335

WILD BLUE PHLOX (Phlox divaricata)

OTHER NAMES . . Wild Sweet William

FLOWER . . flowers are tubes with 5 petal-like lobes; lobes are either pointed or notched. The colors are lilac, rose-lavender, purple or blue.

LEAF . . opposite, lance-shaped

BLOOMING TIME . . April to June

HABITAT . . rich and rocky woods, often in wet areas along streams statewide distribution except in southeast lowlands

UNUSUAL FACTS . . the largest of the early blooming flowers, excepting, perhaps the large flowered trillium.

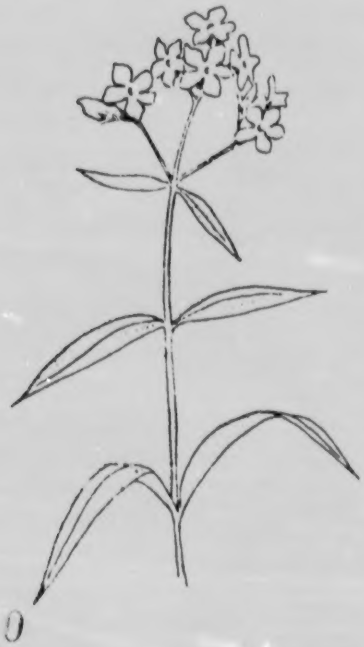
The name Phlox, is the Greek word for flame.

Several genera of phlox family have seeds that when wetted emit mucilage speedily in the form of fine threads. The seeds in the group do not become viscid until wetted, so that they may be blown about, when dry, until they reach a spot that is damp enough for them to exude mucilage and also to germinate.

There are approximately 14,000 seeds per oz.

SOURCE . . 18, p. 130
12, p. 33
21, 85, 548

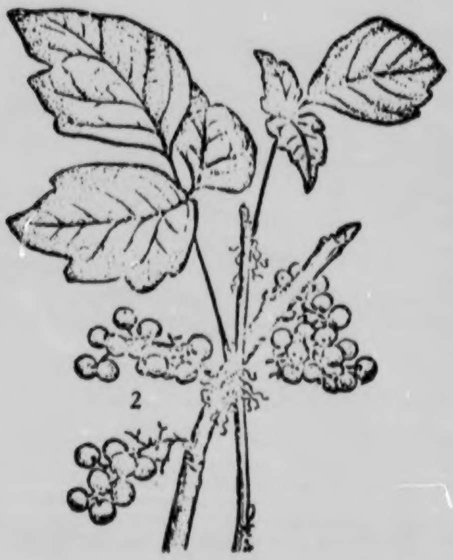
PICTURE . . 9, p. 8



Form # 336

POISON IVY (Rhus radicans)

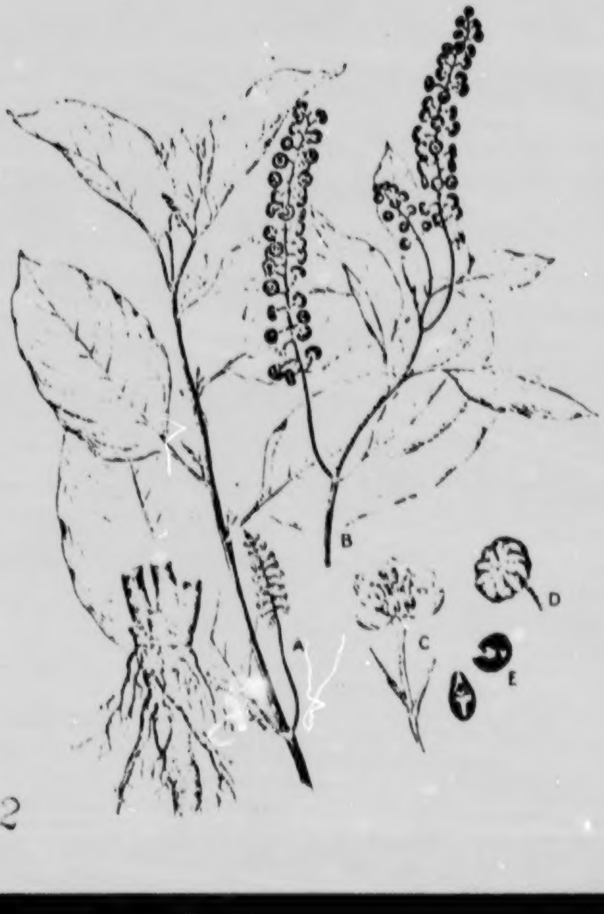
OTHER NAMES	. . none
FLOWER	. . Flowers are in spikes arising from leaf axils, white, very small, with 5 petals and 5 sepals
LEAF	. . Leaves are 3 divided, the two laterals on very short stems and the middle leaflet on a longer stalk
BLOOMING TIME	. . May to July
HABITAT	. . Fence rows, open fields, waste ground, along roads and railroads
UNUSUAL FACTS	. . Fruit are white, sticky berries which are eaten by many birds. The poison is an oil which gets on the skin through contact with plant or smoke from a fire Wash as soon as possible after contact, preferably with hot water or alcohol The poison ivy is strictly American. The plant is not three-leaved. Its leaves are compound and are so made up with three leaflets to each leaf. Rhus is the ancient name for sumac both in the Greek and the Latin. Poison ivy is a sumac but not the poison sumac.
SOURCES	. . 8, pp 92, 202 5,
PICTURE	. . 15, p 164, fig. 2



Form # 337

POKEBERRIES (Phytolaccaceae)

OTHER NAMES	. . Pokeweed
FLOWER	. . small, greenish-white flowers in racemes on white stalks. Each flower ¼" across with 5 white sepals and a rounded ovary
LEAF	. . oblong, smooth, pointed at both ends, on short stems
BLOOMING TIME	. . May to October
HABITAT	. . Waste ground, farm lots, fields, along roads and railroads
UNUSUAL FACTS	. . red juice used for painting pictures The plant is quite poisonous, but in some localities the very young shoots are cooked and eaten
SOURCES	. . 12, p. 81 8, pp. 92, 174
PICTURE	. . 19, p. 149

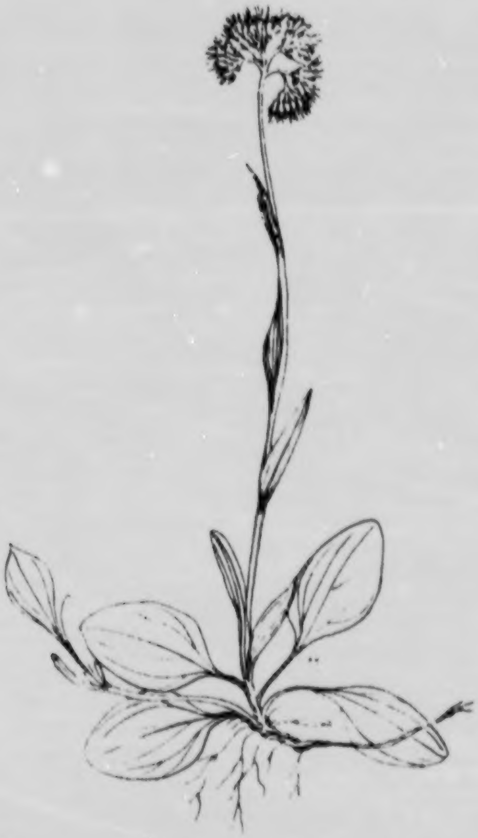


LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 338

PUSSY TOE (Antennaria plantanginifolia)

OTHER NAMES	.. Ladies' Tobacco, Everlasting, Indian Tobacco
FLOWER	.. whitish-wooly plants on stalks 10" high. Flowers are clusters of flowers
LEAF	.. 2 kinds - basal leaves which are paddleshaped with long stems and 3 prominent ribs, and those along the stalk which are narrow, pointed without stems
BLOOMING TIME	.. April to June
HABITAT	.. dry and rocky slopes in acid soils
UNUSUAL FACTS	.. fuzzy flower heads give plant the name

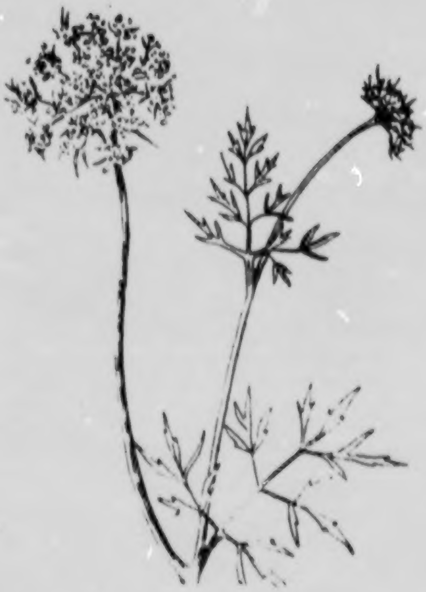


SOURCES	.. 8, pp 18, 248
PICTURE	.. 18, p 77

Form # 339

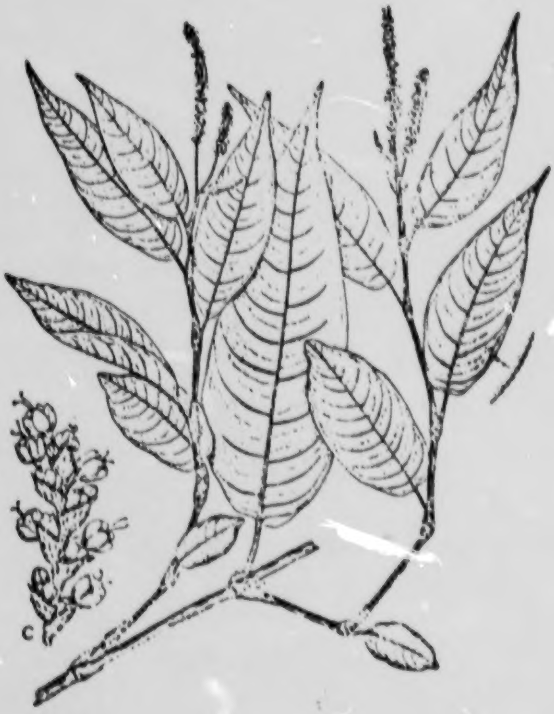
QUEEN ANNE'S LACE (Daucus carota)

OTHER NAMES	. . Wild Carrot or Bird's Nest Plant
FLOWER	. . White flower which appears in the spring and summer. The flowers are not all white, however, each umbel usually having one little purple one at its center.
LEAF	. . Alternate, compound
HABITAT	. . Dry fields, old meadows and pastures
UNUSUAL FACTS	. . When cows eat large amounts it taints their milk with a bitter taste. The plant is edible. As the flower head withers, it contracts upward into a bowl shape and the seeds fall into the base of this bowl - thus the name Bird's Nest Plant. There are 36,500 seeds per oz.
SOURCES	21, p. 548 . . 12, p. 100 8, pp. 42, 214 18, p. 96 19, p. 282
PICTURE	. . 9, p. 12



SMART WEED (Polygonum coccineum)

OTHER NAMES	.. Water Smartweed, Shoestring Smartweed
FLOWER	.. rose to rose-red flowers in tight cylinderical spikes
LEAF	.. elliptical to 6" long
BLOOMING TIME	.. June to October
HABITAT	.. margins of lakes, swamps, sloughs, streams and in ditches
UNUSUAL FACTS	.. seeds popular with ducks
SOURCES	.. 8, pp 126, 174
PICTURE	.. 19, page 119



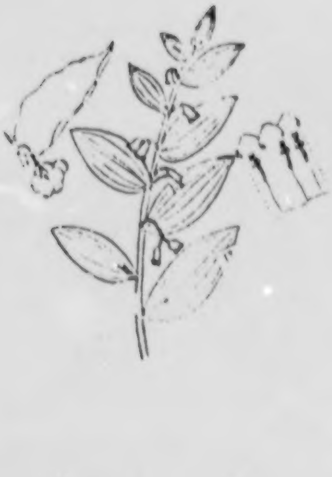
Form # 341

SOLOMON SEAL (Polygonatum canaliculatum)

OTHER NAMES	.. none
FLOWER	.. white, slender, cylindrical about 1" long, hangs bell like
LEAF	.. alternate, ovate leaves, parallel veined about 2" wide and 5" long
BLOOMING TIME	.. May to June
HABITAT	.. rich or rocky woods, stream banks, along roads or railroads
UNUSUAL FACTS	.. root stalk has circular scars from former stalks

Such lilies as Solomon's Seal have enlarged underground stems in which the starchy food for spring growth has been stored. When aerial shoot dies back to stem it leaves a scar that resembles a seal- the reason for its name. By counting these "seals" on a root, the age of the plant can be determined.

SOURCES	.. 8, pp 40, 168 12, p 26, series 18, no. 7
PICTURE	. 13, page 39, fig. 67

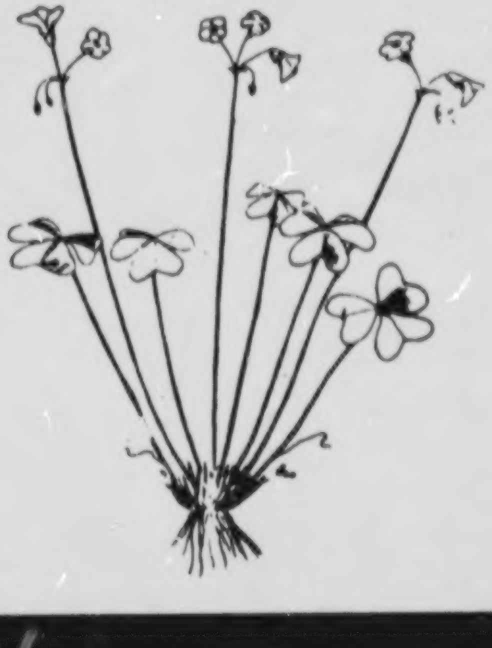


LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 342

SORREL (Oxalis violacea)

OTHER NAMES	. . Violet Wood Sorrel
FLOWER	. . Flower stalks with five petaled flowers grow to 8" high. Flowers are light magenta or lavender, sometimes white but never violet.
LEAF	. . Leaves are three - divided in heart shaped leaflets
BLOOMING TIME	. . April to July, sometimes again in the fall
HABITAT	. . Rocky open woods, prairies, glades, usually in acid soil
UNUSUAL FACTS	. . has a sour taste caused by oxalic acid Oxalis, Greek for "sharp", violacea, Latin for "violet". The shamrock was an old druidic mystic emblem in Ireland associated as a lucky symbol with the ancient Celtic sun wheel, long before 432 A.D. when St. Patrick arrived to teach Christianity. The Irish legend tells that when St. Patrick, on his missionary journey, preached the doctrine of Trinity (Father, Son & Holy Spirit) for the first time before a powerful chief and his people, the heathen leader asked, "How can one be three?" St. Patrick searching for a simple answer to this question, looked down to the ground and his eye fell on a shamrock plant, the very symbol of the doctrine he was preaching. Stooping down he gathered and upheld before the chief one of the shamrock leaves. "Here is this leaf", he said, "three in one, canst thou behold the symbol of my faith, three Gods in One." Gazing at the leaf, the old, lucky symbol of the sun wheel, three parts in one, divisible yet indivisible, the chief was impressed. He embraced the new doctrine in his simple heart, and confessing his faith, he was at once baptized by St. Patrick. His people then followed his example. Since then St. Patrick has been the patron saint and the shamrock the national flower of Ireland.



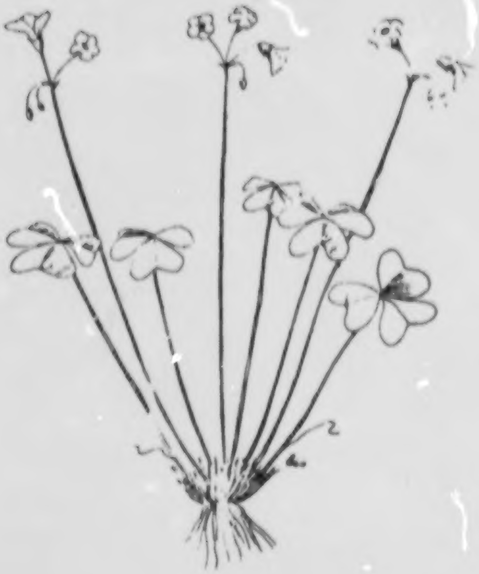
SOURCE	. . 18, p. 126 8, pp. 102, 199 7
PICTURE	. . 18, p. 126

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 343

SORREL (oxalis stricta)

OTHER NAMES	. . Yellow Wood Sorrel, Sheep or Lady's Sorrel
FLOWER	. . yellow with 5 rounded petals
LEAF	. . 3-divided like clover
BLOOMING TIME	. . May to October
HABITAT	. . Rocky open woods, fields, waste grounds, along roads and railroads
UNUSUAL FACTS	. . contains oxalic acid which gives it a sour taste oxalis, Greek for "sharp", stricta, Latin for "erect".
SOURCES	. . 8, pp. 68, 199
PICTURE	. . 18, p. 126

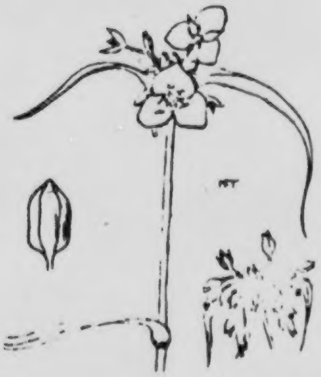


LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 344

SPIDERWORT (Tradescantia longipes)

OTHER NAMES	. . Wild Crocus
FLOWER	. . Triangular with 3 pointed petals. Colored magenta or purple
LEAF	. . basal and grass-like, about 7" long, ½" wide "creased" along the center vein
BLOOMING TIME	. . April to May
HABITAT	. . Wooded slopes and valleys with acid soil
UNUSUAL FACTS	. . low plant, 6" to 8" tall The name spiderwort means spider plant, and refers to the hairy stamens which look like the hairy legs of a spider. The name of the genus is in honor of one Tradescant who was the gardener to Charles the First of England. The specific name, reflexa, refers to the reflexed peduncles of the flowers before and after blooming.
SOURCE	. . 8, pp. 142, 164 12, p. 56 5,
PICTURE	. . 14, p. 42, 71

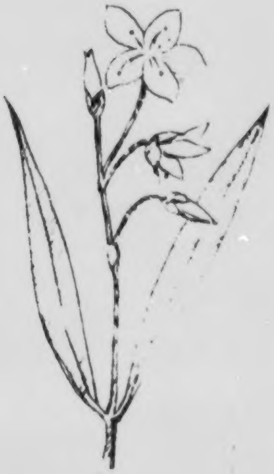


LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 345

SPRING BEAUTY (Claytonia virginica)

OTHER NAMES	. . "Good Morning Spring" from its habit of early blooming
FLOWER	. . five white or pale pink petals deeply veined with a deeper pink; grow in clusters.
LEAF	. . two leaves per stem; deep green, narrow and opposite
BLOOMING TIME	. . March to May
HABITAT	. . moist woods, prairies, meadows (Most widely distributed spring flower
UNUSUAL FACTS	. . the roots are edible, tasting like chestnuts when boiled in salt water Indians used the roots for food The green parts of the plant are also edible and may be used as a vegetable John Clayton (1685-1773) a botanist, arrived in Virginia 1705 to serve as clerk, . . and in his spare time collected plants and seeds for transmission to friends and acquaintances in Europe. He became well known while corresponding with Linnaeus and Gronovius. Claytonia, named for him by his friend and co-worker, Gronovius. His manuscripts and specimens wer destroyed by fire during the Revolutionary War.
SOURCES	. . 12, p. 18 1, p. 23 26, series 18 #7
PICTURE	. . 9, p. 5

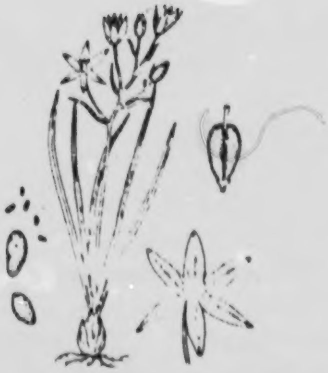


LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 346

STAR OF BETHLEHEM (Ornithogalum umbellatum)

OTHER NAMES	. . none
FLOWER	. . silvery white
LEAF	. . grass-like rolled inward, very dark green, the central vein is white
BLOOMING TIME	. . April to June
HABITAT	. . Fields, along roads, varied
UNUSUAL FACTS	. . A bulbous plant, it produces bulbs at an incredible rate, often used in gardens. The plant is poisonous The flower attracted the attention of Leonardo da Vinci. His pen and ink drawing of the Star of Bethlehem is now in Windsor Castle.
SOURCE	. . 8, p. 26, 167 4, 3,
PICTURE	. . 14, p. 44, fig. 75

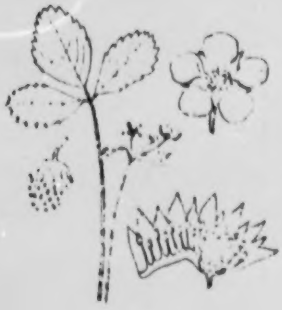


LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 347

WILD STRAWBERRY (Fragaria virginiana)

OTHER NAMES	. . none
FLOWER	. . five white petals and a yellow center
LEAF	. . 3 divided on hairy stems, leaflets are eggshaped and toothed.
BLOOMING TIME	. . April to May
HABITAT	. . open slopes, prairies, borders of woods
UNUSUAL FACTS	. . spread by runners, edible. Strawberry may have once been stray-berry because of the way new runners grow out from the old plants. It is the fragrance of this berry which has given the name of Fragaria to the strawberry. Strawberry leaves form part of the coronets of certain British dukes, earls, and marquises, and alternate with fleurs de lys in the coronets of younger members of the royal family. Because Bavarian peasants believe that the elves are fond of strawberries, they tie a basket of them to the horns of their cattle so they will cause them to prosper. If taken in excess they cause hives in some people. The Juice is used as a dentifrice to remove tartar and to preserve the teeth. The root is also used as a dentifrice; made into lotions and creams, will remove freckles and whiten and preserve the skin.
SOURCES	. . 8, p. 189 12, p. 25 22, p. 1084
PICTURE	. . 13, p. 28 13, p. 65, fig 136



LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION PROGRAM

Form # 348

THISTLE (Cirsium vulgare)

OTHER NAMES . . Bull Thistle

FLOWER . . composed of many deep-purple disk flowers

LEAF . . alternate lanceolate, with long-needle pointed tips

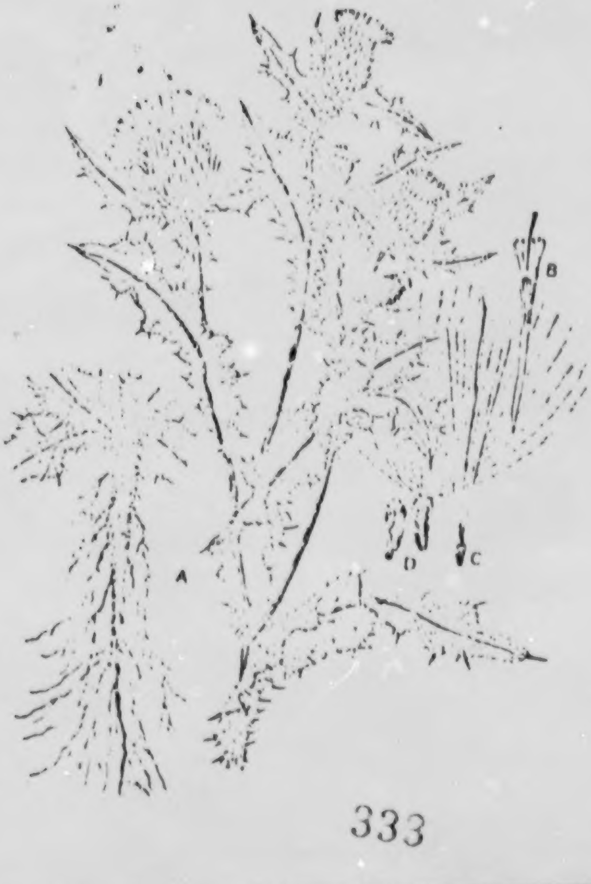
BLOOMING TIME . . June to September

HABITAT . . fields, waste ground, roadsides

UNUSUAL FACTS . . an aggressive and bad weed but it doesn't survive in cultivated fields

SOURCES . . 8, pp 122,256
19, p 398

PICTURE . . 19, p 399



Form # 349

BIRD'S FOOT VIOLET (Viola pedato var, pedata)

OTHER NAMES .. Pansy, Violet, Hens & Rooster, Johnny-Jump-Ups

FLOWER .. are to 1" across; two major color patterns

1. the upper two petals a deep purple violet the lower three pale lilac or lavendar
2. all five petals uniformly pale lilac or lavendar, THE CENTER IS ALWAYS ORANGE

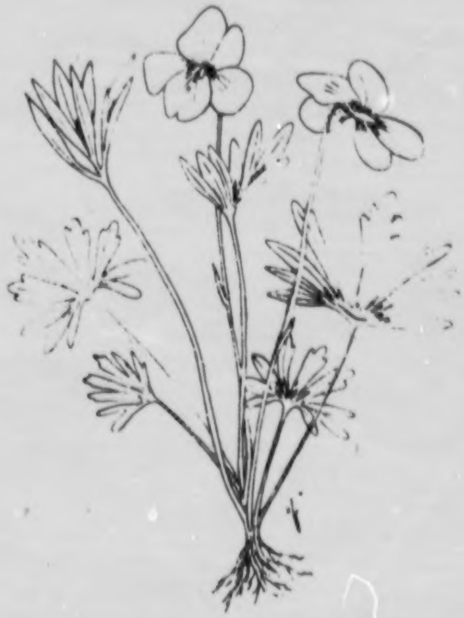
LEAF .. deeply dissected like a "bird's foot"

BLOOMING TIME .. April to June

HABITAT .. rocky, dry open woods, glades, along roads distributed in east, south and central Missouri, scattered in the north

UNUSUAL FACTS .. both the leaves and blossoms are eaten as food and the plant was gathered as a medicine at one time, being used as a laxative. The entire plant was used in the south to thicken soup.

In late fall, violets will often bloom again when day length equals that inducing blooming in the spring.



SOURCE .. 8, page 208

PICTURE .. 18. page 161

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

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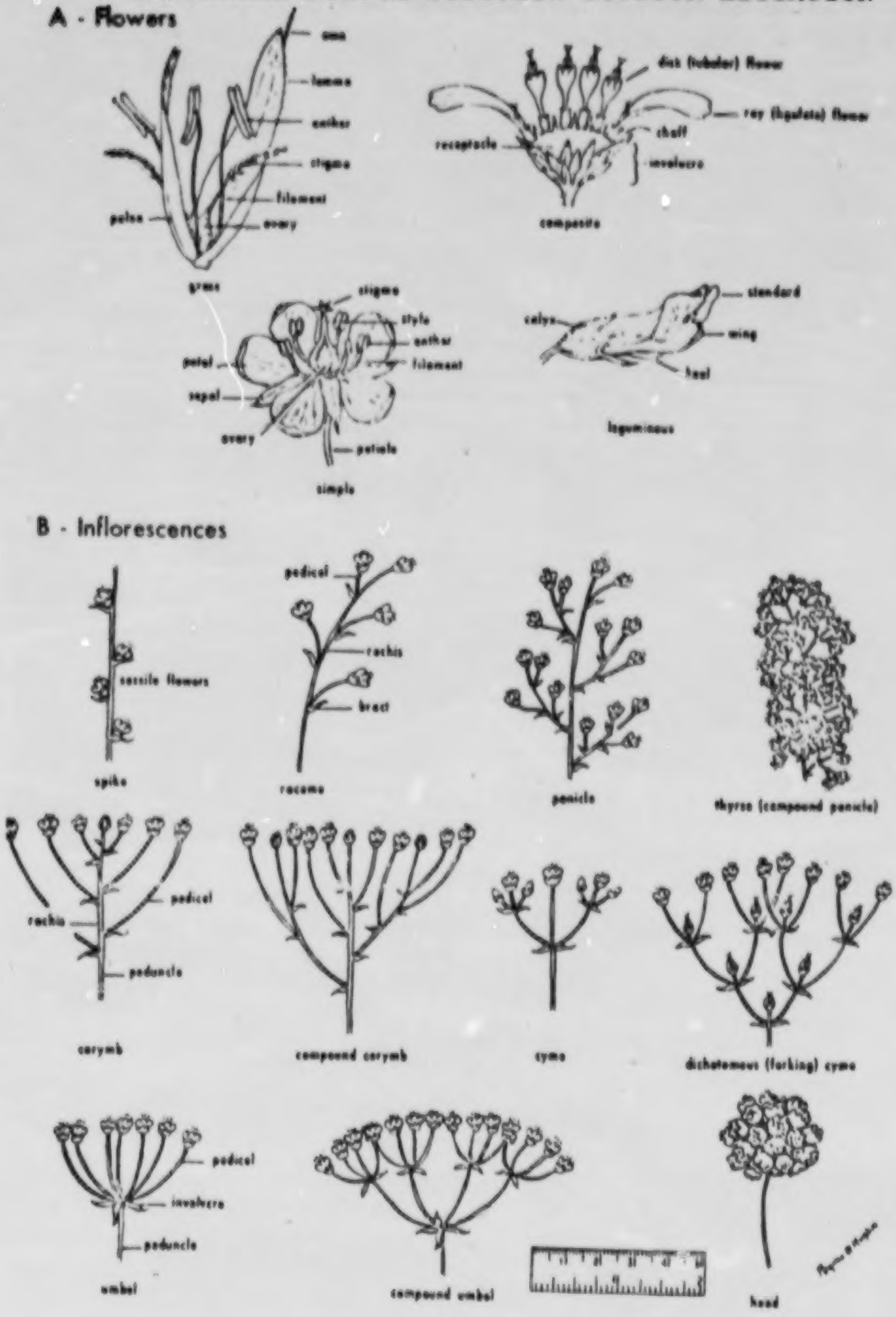
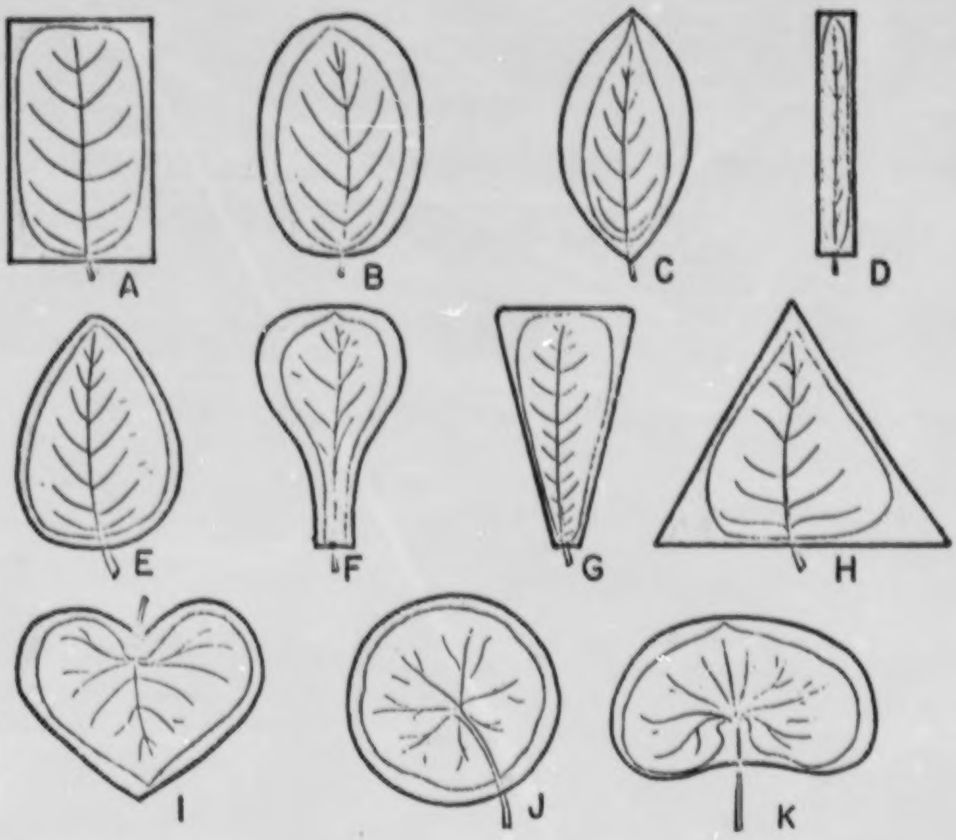
Form # 352


A - Flowers
awn
lemma
anther
stigma
filament
palea
ovary
grass
disk (tubular) flower
ray (ligulate) flower
chaff
receptacle
involucre
composite
stigma
style
anther
filament
petal
sepal
ovary
petiole
simple
standard
calyx
wing
keel
leguminous
B - Inflorescences
sessile flowers
spike
pedicel
rachis
bract
raceme
panicle
thyrse (compound panicle)
rachis
pedicel
peduncle
corymb
compound corymb
cyme
dichotomous (forking) cyme
pedicel
involucre
peduncle
umbel
compound umbel
head

—Types of flowers and inflorescences.



A. Rectangle-shaped
(oblong)

B. Oval-shaped
(elliptical)

C. Lance-shaped or spear-
(lanceolate)

D. Line-shaped
(linear)

E. Egg-shaped
(ovate)

F. Spatula-like or paddle-
(spatulate)

G. Wedge-shaped
(cuneate)

H. Triangle-shaped
(deltoid)

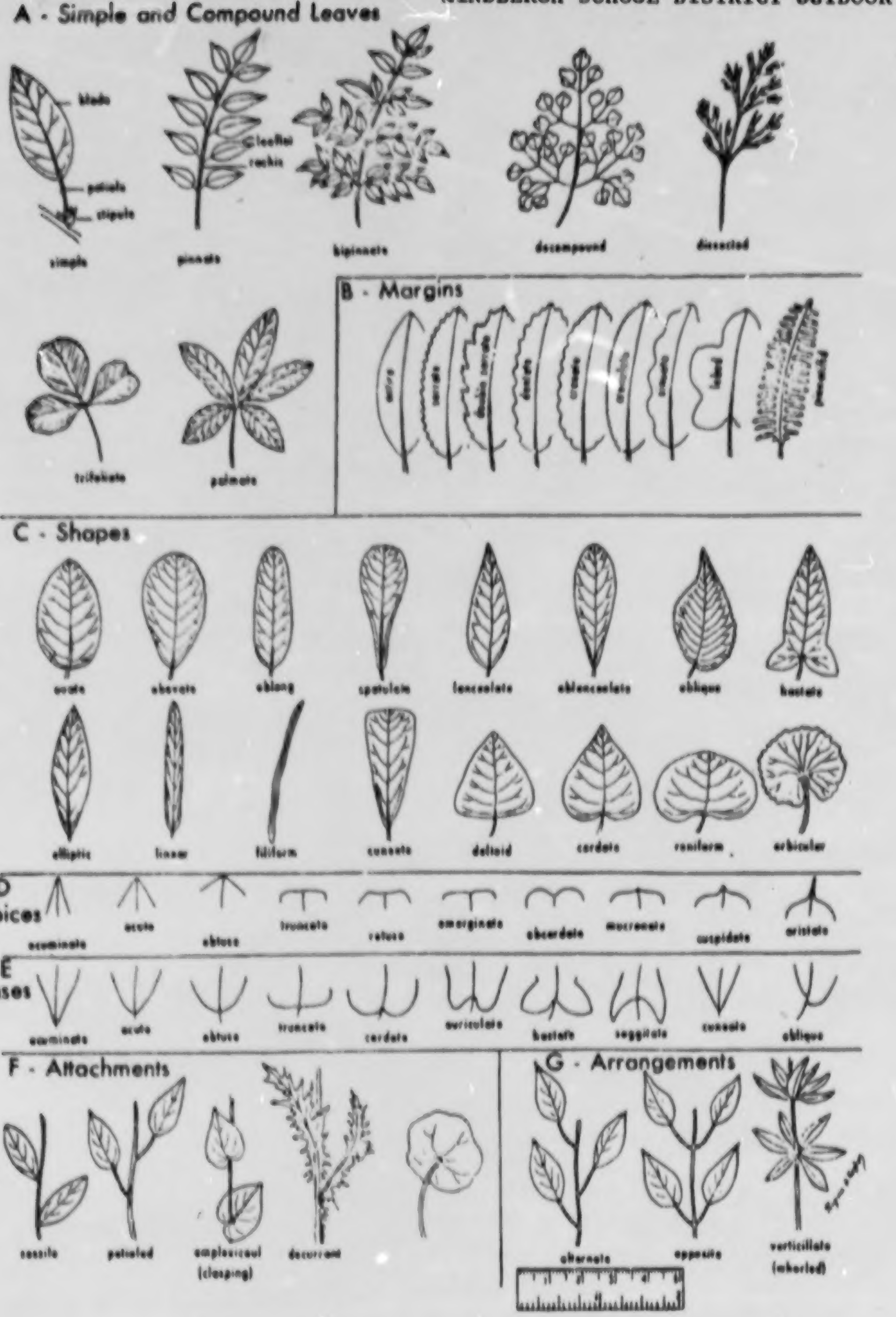
I. Heart-shaped
(cordate)

J. Round-shaped
(orbicular, peltate
attached)

K. Kidney-shaped or bean-
(reniform)

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 354


A - Simple and Compound Leaves
blade
petiole
stipule
simple
leaflet
rachis
pinnate
bipinnate
decompound
dissected
trifoliate
palmate
B - Margins
entire
serrate
double serrate
dentate
crenate
crenulate
sinuate
lobed
C - Shapes
ovate
obovate
oblong
spatulate
lanceolate
oblanceolate
oblique
hastate
elliptic
linear
filiform
cuneate
deltoid
cordate
reniform
orbicular
D Apices
acuminate
acute
obtuse
truncate
retuse
emarginate
obcordate
mucronate
cuspidate
aristate
E Bases
acuminate
acute
obtuse
truncate
cordate
auriculate
hastate
saggitate
cuneate
oblique
F - Attachments
sessile
petioled
amplexicaul (clasping)
decurrent
G - Arrangements
alternate
opposite
verticillate (whorled)

SOILS AND GEOLOGY

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 401

SOILS AND GEOLOGY EQUIPMENT LIST

Teaching tools, supplies and equipment are available in the blue trailers. Areas are marked on outside of doors.

Teacher and student lesson plus forms are available in the upright boxes in Lodge.

It is suggested counselor and/or teachers secure the necessary forms before assembly of students.

Materials and equipment to be utilized on field trip can be carried by "Porters" after being secured by counselor and/or teacher from the trailer.

Upon completion of the activity please SEE that the equipment is returned to its proper place for the NEXT group's usage.

SOILS AND GEOLOGY:

Clip boards

Pencils

2 rock bags

Sample of rocks not germane to the area

Plastic tubes with corks (soil samples)

2 rock hammers

2 safety goggles (Must be worn when using hammer)

2 soil probes (1 homemade, 1 purchased)

1 earth auger

Acid, 10% hydrochloric
(Note--high limestone content in exposed rock in blacktop by trailers)

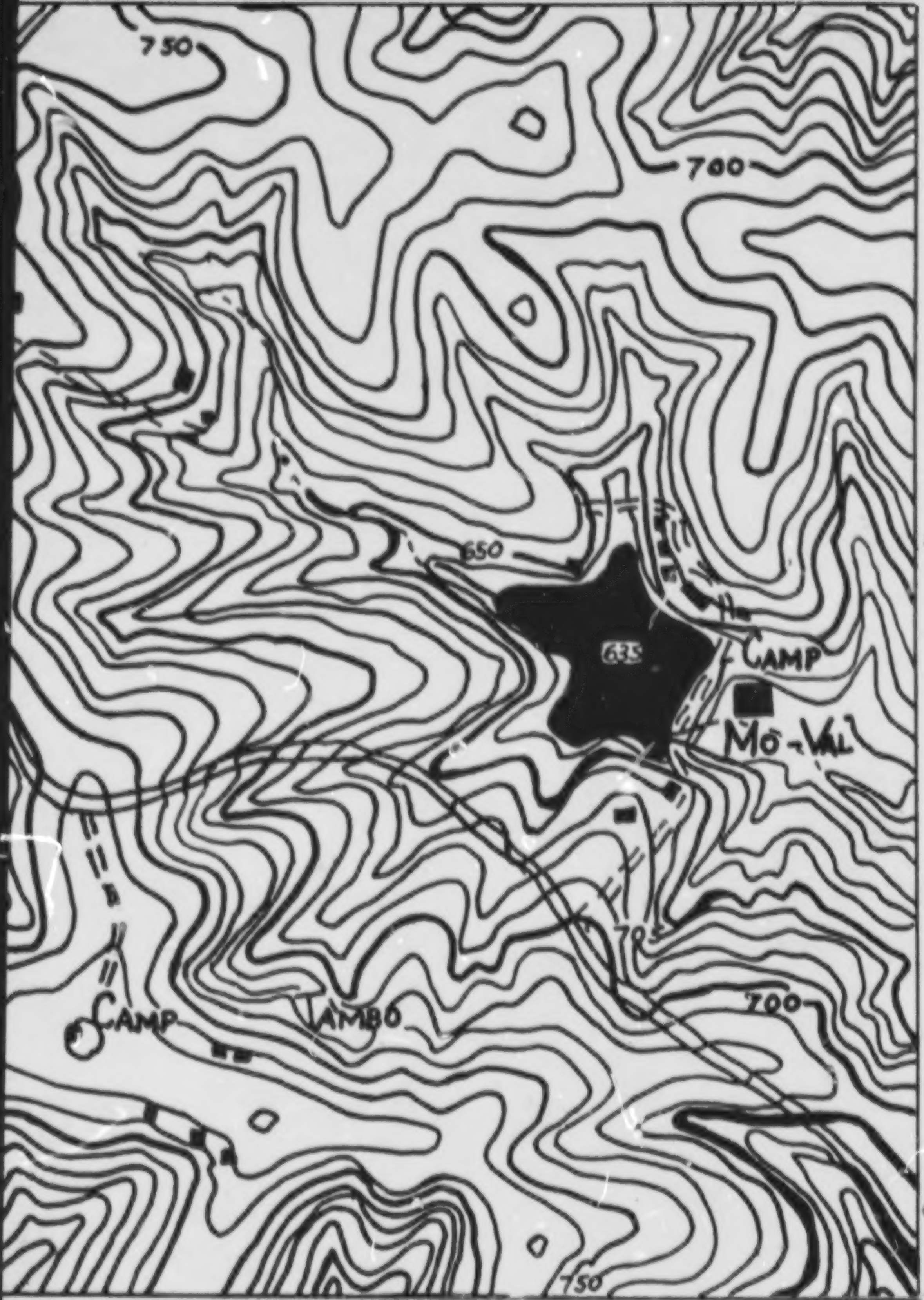
Student hand out:

Form# 402 Topographic map

Teacher only:
Soils and Geology Form# 403 to 407

Topographic map Form# 402

Wooden based plaster cast of site


750
700
650
635
CAMP
MO-VAL
785
700
CAMP
AMBO
750

LINDBERGH SCHOOL
DISTRICT OUTDOOR
EDUCATION

FORM# 402

1. ____________

2. ____________

3. ____________

4. ____________

5. ____________

SOILS

Sample Color, Type
Comments

A. ____________

B. ____________

C. ____________

D. ____________

E. ____________

Mark location of samples --

Rocks use number
Soils use letters

MAP AND WORK-SHEET

GEOLOGY AND SOILS
CAMP MO-VAL

TOPOGRAPHIC MAP CAMP MO-VAL

Scale 10" = 1 mile Contour interval 10 ft. Copied from U.S. Geological Survey 1966

LINDBERGH OUTDOOR EDUCATION PROGRAM

FORM # 403

SOIL AND GEOLOGY

I. UNDERSTANDINGS TO BE DEVELOPED

- A. How rocks and soil at Camp Mo-Val were formed
- B. Why Topsoil is so important
- C. How to prevent erosion

II. NECESSARY VOCABULARY

- A. Soil
  1. Topsoil
  2. Subsoil
  3. Humus
  4. Erosion
  5. Alluvial - soil which was moved by wind or water
  6. Residual - soil which remains where it was formed
  7. Factors in soil fertility
     - a. Humus: May add with plant or animal matter
     - b. Chemical composition: May add commercial fertilizer
     - c. Particle size
     - d. Acidity: Make less acid with lime

- B. Sedimentary Rock
  1. Sandstone: Cemented bits of sand (silican dioxide) red, white or brown in color; test - soft, sand grains will rub off. To determine color, be sure to chip into solid rock. Red color is caused by iron.
  2. Limestone: (Calcium carbonate) deposited chemically or from sea animals; test-fizzles rapidly when tested with diluted hydrocholric acid
  3. Dolomite: Originally limestone, but part of calcium has been replaced by a magnesium. Looks like limestone or white marble. Test - fizzles slowly when scratched or ground up and tested with dilute hydrochloric acid.

4. Chert: Impure flint, mostly silica dioxide in which crystals are not so clear. Test - Very hard. Steel blade will not scratch. Rings when struck with rock hammer. May spark.

III ACTIVITIES TO START BEFORE FIELD TRIP

a. In long glass tube put soil, sand, small gravel, top soil, subsoil, and any type soil available. Fill nearly full of water. Shake until all particles are suspended. Watch particles separate out into layers as they settle. Leave standing while gone on trip.

B. Fill one quart jar half full with woodland top soil, very rich in humus. Fill another quart jar with soil from exposed area around camp. Slowly pour one (1) pint of water into each jar. Let stand for two hours. Note: Send counselor with one child to get jars of dirt.

IV FIELD TRIP: Mark locations samples are taken on topographic map

A. Equipment: Hydrochloric acid, rock hammer, shovel, magnifying glass, three (3) small cans or jars for soil samples. File, and Map.

B. One suggested route ---- comments

1. Back of dining hall -- Sandstone and Chert. Take rock sample. Check color of sample. May be both red and white. Notice thin soil and difference in color of vegetation on soil where top has been removed. Yellow green plants indicate lack of nitrogen.

   Take soil sample. Rub chert and sandstone - which is toughest?

C. Cross Dam ---- Point out dam, spillway, pines planted ton dam to hold soil, and role of dams in preventing floods. Point out rocks weathering away from water, freezing,sun, etc.

D. Below Dam ---- Dolomite and chert. Take rock sample. Test rock after filing to get to fresh surface.

E. Walk down to spillway, point out stream which may not be running. Go along trail by south side of lake, pass through field with pines, watch for quail. Note--how roots hold soil along creek on some banks, thicker top soil.

F. Cross road and take path.

Point out abandoned or cut over land taken by sumac and cedar. Comment on poor soil. Explain succession in ecology of Missouri abandoned fields. Take soil sample.

G. Continue on path into woods.

Find rocks, lichens which are the first to attack rocks, followed by moss and other plants.

Discuss how this forms soil. Dig down in leaves. Notice difference in soil

Discuss role of leaves in preventing erosion, building of soil, and prevention of flood.

Feel soil. Take soil sample.

H. Go up path to outcroppings on it and the chapel located near path. White sandstone. Take sample. Test. Note layers of rock.

I. Return down path to road, go left and take road to swimming pool and west side of lake.

Examine soil on flat area near lake. Feel. Take sample. Near lake, soil is sandy.

J. Sidetrip is time permits walk up branch which runs under bridge. Take left fork. Follow to small spring and check rock.

K. Note layer of rock at path crossing creek.

V. RETURN

A. Try to get children to conclude the rocks formed are in nearly horizontal layers. The valley was eroded away.

B. Look at tubes which have been settling.

C. Pour off excess water from each jar into a container for measurement. Which soil absorbed the most water?

D. Compare the three soil samples. Do as many tests as time allows.

Put a small amount of the three samples in each three test tubes.

Fill half full of water. Shake

Test 1 Place one drop of water on red litmus paper and another drop on blue litmus paper. Acid turns blue litmus red -- bases turn red litmus paper blue. Is soil acid or bases?

Could also be done with water from jars.

Test II Examine sample by feeling. Humus and sand will brush off. Clay will dirty the fingers.

Test III Examine a drop of the liquid from each tube in test one under the microscope.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM # 406

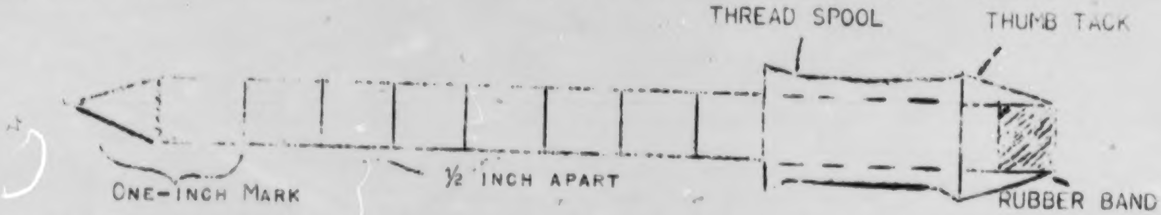
SOILS (Cont'd)

ONE HOUR SPECIAL ACTIVITY

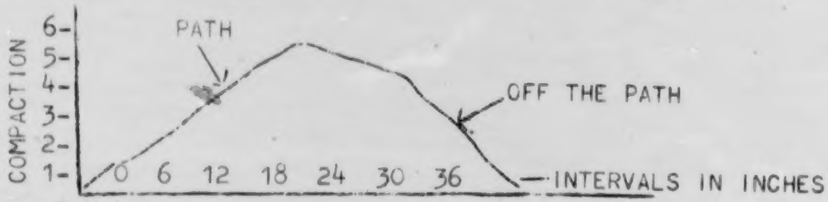
BACKGROUND: Soil compaction is a term used to describe the degree to which the soil is packed down. Whether there is an ideal amount of soil compaction for best plant growth is not known. The amount of soil compaction for maximum plant growth depends on many factors--type of plant being grown, the amount of moisture available, the depth of planted seeds, and the type of weeds growing nearby.

Activity No. 1

Mark equal spaces on a pencil (or length of doweling with a point fashioned on one end). Put an empty thread spool over the eraser-end of the pencil and attach a rubber band (size #84) to the thread spool by thumb tacks and over the end of the pencil.



Holding on to the spool (which is attached to the pencil as in the above figure), push the pencil point into a field about two feet from a dirt road or path. Record the effort required to push the gauge to the one-inch mark (near the point of the pencil), by noting how many spaces the spool moves down the pencil. The rubber band will stretch proportionally to the amount of compaction of the soil. The lower the number on the pencil (ex: 1 or 2), the less compaction of soil. The higher the number on the pencil (ex: 6 or 5), the greater the compaction of soil. Repeat the process at six-inch intervals until the soil on the other side of the path is reached. Record the results, using a graph.



Penetration Rate of Water:

CONCEPT: The rate of water intake determines the amount of water that runs off. The more water that the soil absorbs, the less there is to run off.

BACKGROUND: There are other advantages to soils that take in water readily. Much of the rain that falls during heavy rainfall soaks into the soil and is stored for use later on. Plants need air in the soil for best root development and growth. Water movement in the soil brings better air circulation. When water enters the soil. air moves out and is replaced by fresher air as soon as the soil pores are again free of water. The way soil has been managed has a lot to do with how fast it takes in water. Farmers who grow grasses and legumes (e. g., bean, pea, peanut and clover) in crop rotations, help their soil to take in more water and thus prevent much erosion.

Activity No. 2

1. Tie a cloth over one end of each of four transparent cylinders such as chimney lamps (one-quart milk cartons may be substituted). Fill each tube 3/4 full with a different dry soil materal (sand, silt, clay, humus). Use dry peat moss if humus is not available. Gently pack the soil as you fill the columns.

2. Add water to one column. Measure the distance the water penetrates every fifteen seconds.

Plot the distance and time on a graph. Repeat theabove procedure for each soil material. Plot the data for other types of soil.

Activity No. 4

You will need six fruit or vegetable-juice tin cans; a board 4" wide x 1" thick x 12" long; watch with a second hand; hammer; 12-inch ruler; pencils and paper; quart measure; and two gallons of water. This activity in some cases may take one or two hours.

Cut the bottom from one end of the can just below the rim. This leaves a sharp edge that will drive into the ground easily. Cut out the other end, leaving the rim for added strength. Try to locate places of varying ground cover and soil type.

Mark the outside of each can 2" from the end without the rim. In each of the spots you have selected, set a can so that each end closest to the 2" mark is on the ground. Place a board on each can and tap with a hammer until the 2" mark is level with the ground. Do not disturb the plant material or soil in the can. Add one quart of water and then complete the following record:

1. Place-identify it as grazed, or ungrazed, burned, cultivated, etc.
2. Condition of soil
3. Presence of leaves and sticks
4. Time the water was added
5. Measure the water that has moved downward at the end of ten minutes and thereafter in ten-minute intervals until all the water has moved downwards.

Activity No. 13

You may use the two mounds for this experiment also. Be sure both mounds of topsoil are smooth. On one mound, place straw or grass, and leave the other bare. Sprinkle water lightly on each slope and note which one loses the most soil and water.

Acidic and Basic Nature of Soils:

CONCEPT: Variations in acidity can be tested and evaluated.

BACKGROUND: The type of plant that grows well in acidic soil (soil with a pH value of less than 7), usually doesn't grow well in basic soils (soil with a pH value of more than 7).

Acidic, neutral, and basic solutions can be identified by using litmus paper. Blue litmus paper turns red when dipped in an acidic solution and red litmus paper turns blue when dipped in a basic solution. When neither red nor blue litmus paper turns color when moistened by the same solution, the solution is neutral.

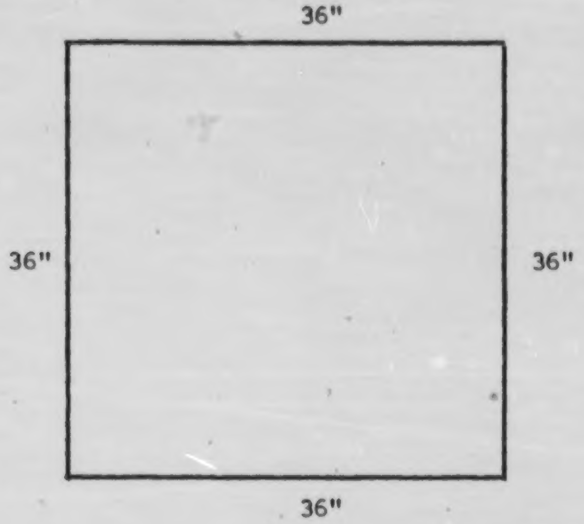
Form # 408

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

SOILS AND PLANT LIFE

Select a square yard (3'x 3') of floor in a wooded area or from an open field.

Woodland/open field plot



(1) Show in the above square all tree life found by use of symbols.

(2) Draw your key symbols below, here are a few suggestions.

oak tree,	T			
goldenrod,	GR			
cedar,	C			
hickory,	H			
grass,	G			

(3) Diameter of largest tree ________________" Species ______________________

Circumference of largest tree ____________" Species ______________________

(4) How tall is smallest? ____________________

(5) How many trees in your plot, ______________

How many of the same kind? _____________ What kind was it? ____________

C Could you identify - if not bring in one leaf to library.

(6) NOW LIST the shrubs in your plot above.

(7) Be sure to add symbols to (2).

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 409

SOILS AND PLANT LIFE

(8) What is different between Shrub and Tree?

Well ... a TREE is:

a SHRUB is:

(9) Now how many shrubs? ____________

All the same? ________ If not, how many of each different kind. __________

(10) NOW LIST flowers in your PLOT plan, be sure to add symbols.

(11) Any flowers in bloom Yes / No What color/s? ____________

Do they have an odor? Yes / No What kind of odor? ____________

Are there any old buds? ____________ Seeds? ________

(12) List or describe something special on the surface of the soil.

(13) Are there any traces of the trees, shrubs, flowers in your plot resting on the surface?

If so, LIST.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
SOILS AND PLANT LIFE

Form # 410

(14) Using your shovel as a guide, measure off approximately one square foot (12" x 12") of soil in your plot.

Without disturbing the plant life quickly transfer about the top one inch of soil into a large plastic sheet or newspaper.

Working carefully, examine your sample for live insects and worms, or parts of worms, Ugh!

Separate the different kinds into bottles, for later identification. Take only one of each kind and carefully return to the undisturbed soil all the rest.

Record your data in chart below: What is a BUG:

What is an INSECT:

DRAWING	SIZE	COLOR/COLORS	BUG-INSECT	NUMBER FOUND
	x			
	x			
	x			
	x			
	x			

NOW: What's left? sure Soil.

What's that?

Describe most noticeable characteristics of soil.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 411
SOILS AND PLANT LIFE

(15) **Does the soil have an odor? If so, describe.**

(16) How does the soil feel? ______________________________

(17) What color is the soil? **Why?** __________ Why? ______________________________

(18) **Examine soil with magnifying glass. Soil texture is made up of** ______________
____
____

(19) Is the soil cold or warm. ______________

(20) How can this affect plant growth? ______________________________
____

(21) Will it differ with the seasons? __________ Why? ______________________________
____

(22) Are there any roots in your 1" soil plot and if so how do they affect the soil?

(23) How wide did the roots grow? How deep? ______________________________

(24) Do plants and animals need the soil, if so why? ______________________________
____

(25) Does the soil need plants and animals, if so why? ______________________________
____

(26) Do you KNOW what pH means?? ______________________________

(27) How can you find the pH of the soil? ______________________________

(28) What do the plants in your plot use for food?

(29) How did the food get there?

(30) How can you tell if there is any food in your plot?

POND LIFE

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 413

POND LIFE EQUIPMENT LIST

Teaching tools, supplies and equipment are available in the blue trailers. Areas are marked on outside of doors.

Teacher and student lesson plus forms are available in the upright boxes in Lodge.

It is suggested counselor and/or teachers secure the necessary forms before assembly of students.

Materials and equipment to be utilized on field trip can be carried by "Porters" after being secured by counselor and/or teacher from the trailer.

Upon completion of the activity please SEE that the equipment is returned to its proper place for the NEXT group's usage.

POND LIFE:

3 dredges

3 screens (Screen wire and hardware cloth)

1 seine (Spring best time to use)

Microscope slide covers
(1 box slides)

2 wooden jar trays, 12 jars each

4 sets of 4 extension cords with 4 outlets each

Dissecting kits

Dissecting trays

Pins
Microscopes

Charts:

Pond life

Student hand out:

Use of Microscope
Form# 139
Form# 140

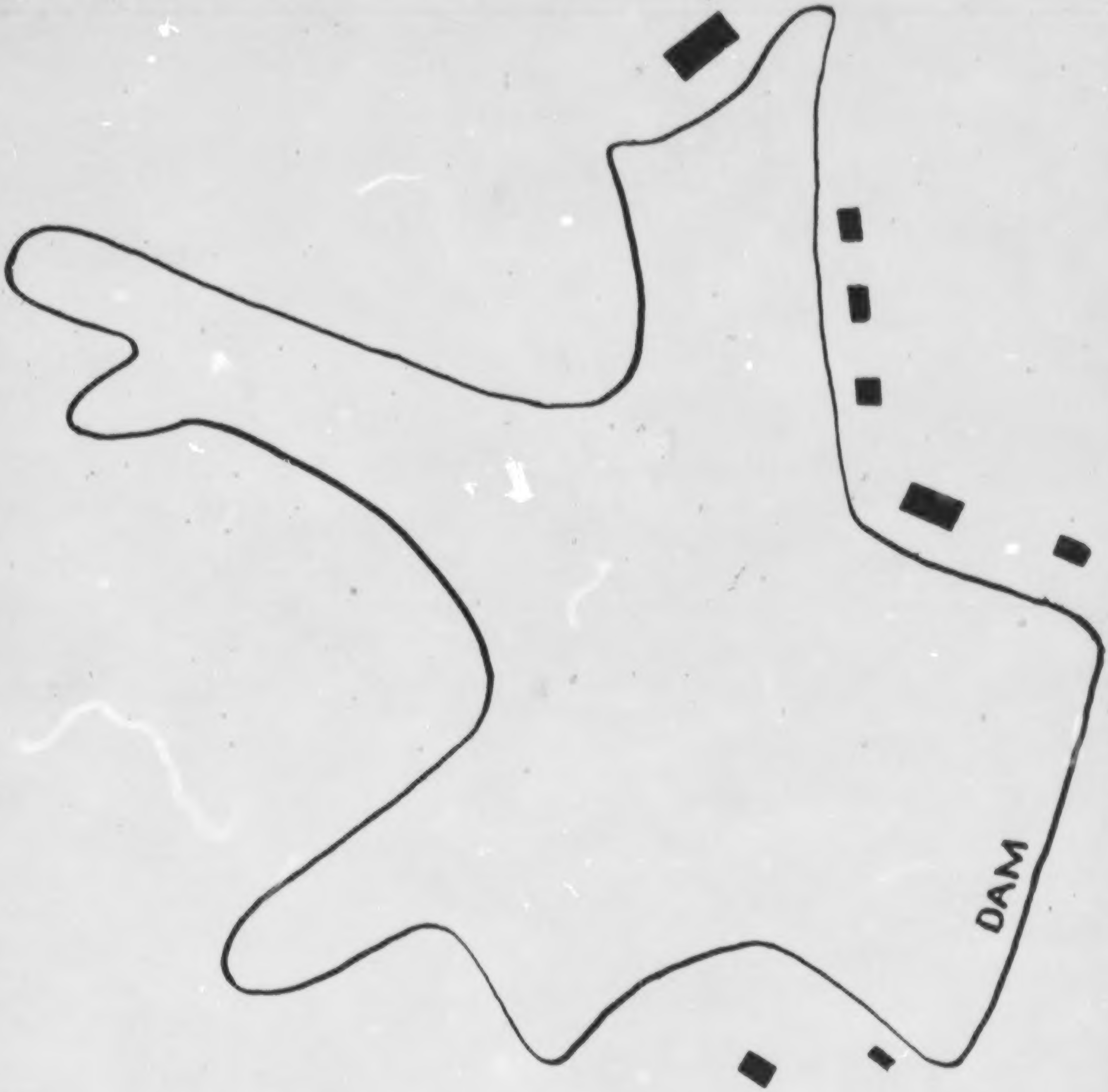
Pond Insects Form# 415
416
417
418
419
420
421

Algae Form# 425
426
427

Pond Plants Form# 428
429
430

Protozoa Form# 422
423
424

Lake Map



Form # 415

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
POND INSECTS

Name ______________________ Date ____________

Trap an insect for observation.

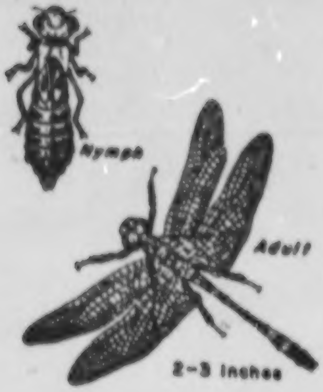
1. Color of insects. ____________
2. Color of spots, stripes or other markings. ____________
3. Location of markings. (back, wings, abdomen, etc.) ____________
4. Number of legs. ____________
5. Are legs adapted for swimming? ____________
6. Into how many parts is the body divided? ____________
7. How much of the body was above water. ____________
8. Using a hand lens, look for breathing pores in the upper surface of the abdomen. Does it have any? ____________
9. Are the mouth parts adapted for chewing, sucking, or biting? ____________
10. Sketch a picture of your insect. Include anything that will help in identification.
11. Try to identify your insect from an insect guide. ____________

Form # 416

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

POND INSECTS

1.

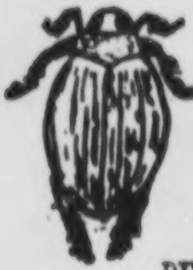


Dragonfly (Odonata)

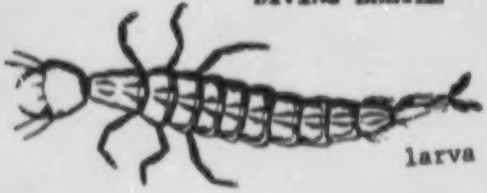
They are found in all types of fresh-water areas: ponds, lakes, streams, and swampy areas. The nymphs can be found crawling about on the bottom, on aquatic plants, or other underwater objects. They are one of the largest aquatic insects; most of them are dark brown to greenish as juveniles and change to brighter colors as adults. When resting, their four wings are held outstretched.

Damsel flies are smaller and more fragile than true dragonflies. At rest, damsel flies hold their wings straight up from their bodies.

2.



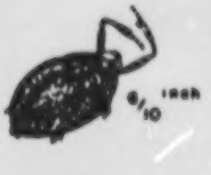
DIVING BEETLE



Diving Beetle (Coleoptera)

Adults are oval, flattened beneath, and black with hind legs adapted for swimming. It carries an air bubble at end of its abdomen under water. Larva are very active and feed upon a great number of water insects. They are long and slender with strong jaws. Legs are found in the upper half of the larva followed by a long segmented abdomen. (Quick check: Long, slender, with strong jaws. Size from 1/2" to 1-1/2" Adults black with air bubble at end of abdomen.)

3.



WHIRLIGIG BEETLE

Whirligig Beetle (Coleoptera).

It is found commonly on the surface of quiet or running water, swimming in erratic paths, frequently in flocks of considerable size. The adults are flat, oval, and blue black with the hind legs suited for swimming. The larva look a great deal like the diving beetle; however, they can be distinguished by their conspicuous side appendages. (Quick check: Larva long slender with segmented abdomen. Appendages arise from each segment. Adult, small, blue black swimming on surface in erratic pattern.)

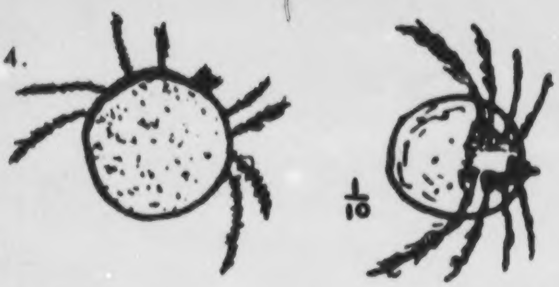
It has a polished streamlined body, and two pairs of paddle-shaped legs fringed with hairs that help it in sculling through the water. The eyes are divided, one part looking up into the air, and the other directed down into the water.

Form # 417

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

POND INSECTS

4.



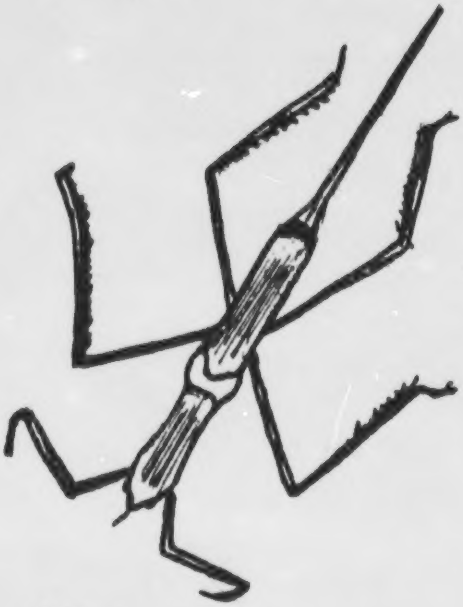
WATER MITE

Fresh Water Mites (Acarina)

The body is 1/10th inch long and almost round. Legs have swimming hairs. They appear early in spring but die by summer. The notable feature is its intense red color. Larval stages are difficult to find. (Quick check· Round and red with small swimming legs.)

No separation of head, thorax and abdomen. They have pincer-like jaws that are adapted for piercing their prey.

5.

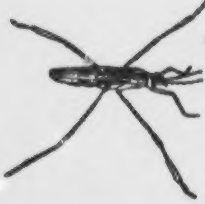


WATER SCORPION

Water Scorpion

It breathes through a tube at the rear of its body, which it thrusts above the surface. It seizes its victims with its front legs and kills or paralyzes them with a fluid injected through its beak. They seldom fly.

6.



WATER STRIDER

Water Strider (Hemiptera)

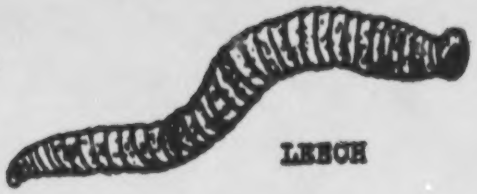
These are often found crowded together in flocks skimming the surface of the water. Adults are 1/2 inch with front legs modified for grasping. They resemble spiders, but are insects. Larva look like miniature adults. Sometimes called a water skipper. (Quick check: Only insect found living on surface of the water. Black with long legs. Looks like a long-legged spider walking on the surface of the water.)

They skate on the surface of water, each leg making a small dimple in the film that shows as a shadow on the stream bottom. The legs are very long and covered with close-set hairs which prevent them from breaking through the surface film.

Form # 418

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
POND INSECTS

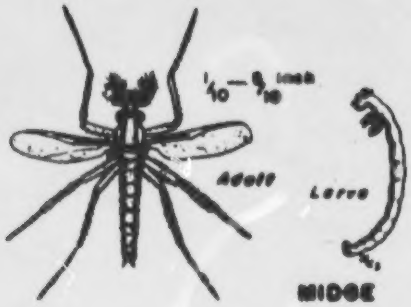
7.



Leech

A blood sucker. It has an elongated body that is soft but tough and is usually blackish or brownish. Its body is made up of segments. It may range in length from less than an inch to a foot or more.

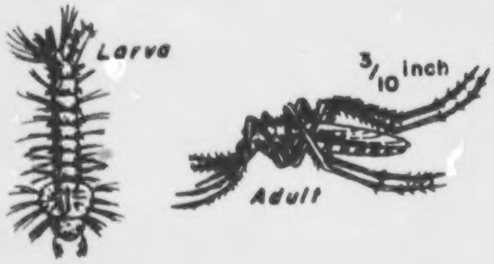
8.



Midges (Diptera)

Larvae are most abundant in the shallow water areas of lakes, ponds and streams favored by a heavy growth of aquatic plants. They prefer soft mucky bottoms, as they are a bottom-dwelling species, and need this type environment for constructing their tube-like homes. Larvae live in soft tubes; however, during later stages of life they are found living in silken cocoons or gelatinous cases. The adult Midges look much the same as mosquitoes. Their antennaes look like two feathers on the front of their head and they don't have a beak.

9.



MOSQUITO

Mosquito

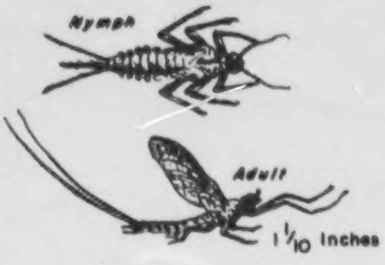
Mosquitoe larvae are usually found in stagnant, slow moving water. Most people are familiar with the appearance of adults and know that they are more abundant around marshy, damp areas. The young are often called "wigglers" and can usually be found wiggling about just under the water's surface. Adults are readily recognized by almost all students. Larva forms are wigglers that in one to two weeks become pupa. The larva at rest hangs down at an angle from the surface, breathing through a small tube. Larva appears worm-like without legs and with a great many hair-like structures arising from the body. The pupa form also rests at the surface and appears in a "comma" shaped form. It has one pair of wings with scales along the wing veins and on other parts of its body. It has 14 or 15 segments to each of its two antennae. (Quick check: Small 1/2 inch larva floating just beneath surface of water. Wiggle violently when disturbed.) Contrary to popular belief, not all mosquitoes bite; the males just buzz and are not equipped for biting.

Form # 419

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

POND INSECTS

10.

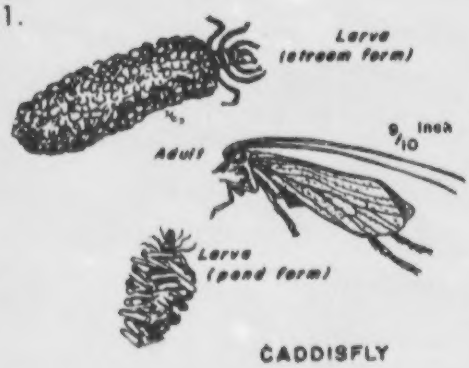


MAYFLY

Mayfly (Ephemerida)

The adult is thin, delicate, with wings held over back when at rest. It usually has three but sometimes with two long delicate tails. The front pair of legs are held forward. Larval or nymph forms are aquatic with gills on side of abdomen. The adult Mayfly is incapable fo eating so it may live anywhere from a few hours to about a week. The Mayfly nymph may spend from one to three years swimming after hatching from the egg. The larvae feed on smaller forms of animal and vegetable life. They stay under water until full grown; then they rise to the surface, burst their skin, and fly away. (Quick check: Look for three long "tails" at the end of the abdomen.)

11.

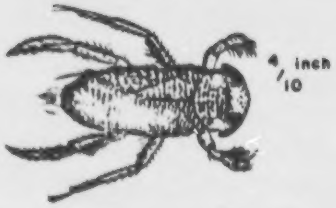


CADDISFLY

Caddis Fly (Trichoptera)

Larval stage most often found. Larva build log cabin-like cases from a gelatinous coat secreted by the skin and debris from the bottom of the pond. They can be seen moving about on the bottom dragging their cases with them. Locally called "peri-winkles", the adults are poor fliers and are often found near the pond in which they lived. They have four membranous wings each well-supplied with many veins. The sloping wings are usually more or less well covered with fine, easily shed hair-like structures. (Quick check· only larva in the pond which will have a case of debris covering the abdomen.)

12.



WATER BOATMAN

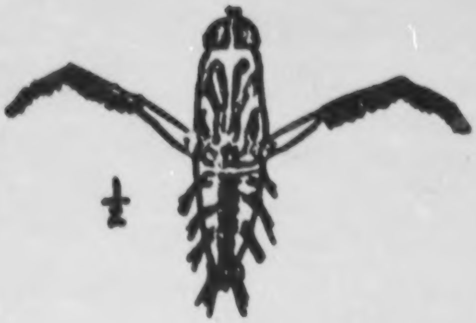
Water Boatman (Hemiptera)

Adults are brownish in color with the front of body modified like the front end of a boat. The hind pair of legs is suited for swimming with an oar-like motion. Larva look much like adults. Some have conspicuous red eyes and all swim right side up as distinguised from the back swimmer. (Quick check· Adults, eyes red, front end of body blunt, hind legs longer than others and move with oar-like motion.)

Form # 420

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
POND INSECTS

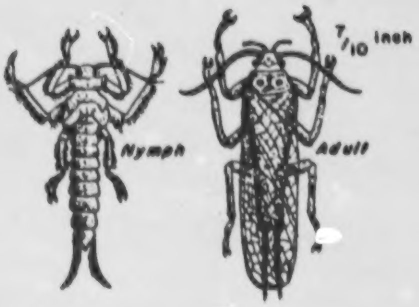
13.



Back Swimmer (Hemiptera)

The body is boat shaped and about 1/2 inch in length. It swims with back side down. The hind legs are longer than others and flattened. These move with an oar-like motion. Larva resemble adults. (Quick check· Swims with back side down. Hind legs longer and flatter.)

14.

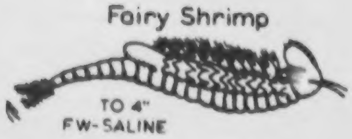


STONEFLY

Stone Fly (Plecoptera)

Stone flies seem to require running water in which to live. They are never found in lakes except in the inlets and outlets. When the adult is resting its wings lie lengthwise upon the back. Nymphs are found in abundance only among the rocks in streams. Stone fly nymphs have two long and stiff tails.

15.



Fairy Shrimp (Branchiopoda)

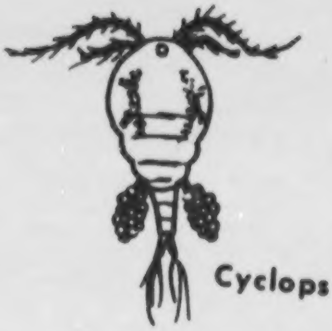
Adults attain length of up to one inch. Usually pink and swim with back side downward. Swimming appendages move in wave-like patterns. Appear in the pond in very early spring, deposit eggs which develop during summer and females emerge from eggs during fall. Females lay eggs which winter at the bottom of the pond. In spring, cycle starts again. (Quick check: Pink, swims on back waving appendages.)

Form # 421

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

POND INSECTS

16.

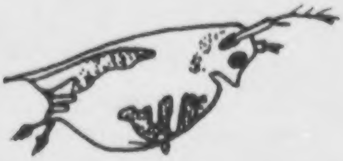


Cyclops

Cyclops (Copepoda)

Very small about 1/15th inch long but recognizable by the brilliant red color of the body structures. Teardrop shaped body with two large swimming antennae emerging from the head. A single conspicuous red eye gives the animal its name. Commonly called copopods. (Quick check: Red color and conspicuous antennae and single red eye.)

17.



Daphnia (water flea)

Daphnia or Water Flea (Branchiopoda)

Adults are small, just visible to the eye as individuals. They are almost transparent, and approximately 1/12th inch in length. Body is oval with a tail spine almost as long as its body. Two large swimming antennae are very obvious. (Quick check: Small transparent body, two large swimming antennae. Swims with a jerky motion.)

FORM # 422

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

STUDYING FRESH WATER PROTOZOA

Materials needed:

1. Pond water
2. A medicine dropper
3. A microscope
4. Well slides or regular slides
5. Slide covers
6. Quince seeds

Procedure:

1. Collect water from a pond in a wide mouth container. (Gently remove some duckweed or other floating plants without disturbing the roots. This can be done by putting the container gently below the plant and slowly removing it from the water.)

2. Using a medicine dropper, place a drop of the water culture in the middle of a clean glass slide.

3. Place a cover slide gently over the drop of culture on the slide.

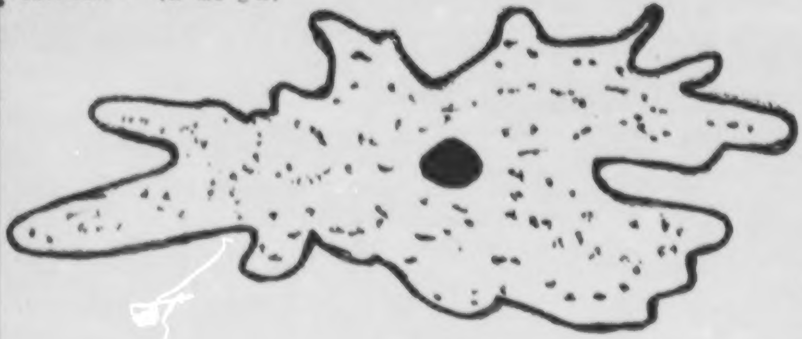
4. Examine the slide under the microscope.

Since Protozoa are constantly active, it is advisable to slow them down. To do this, get some quince seed from a drugstore and soak them overnight in a small amount of water. Put a drop of the resulting jelly into the water containing the Protozoa. This will slow the movement of the Protozoa making them easier to study.

POND ANIMALS

(Protozoa - single cell)

AMOEBA - (à-mè ́bá)



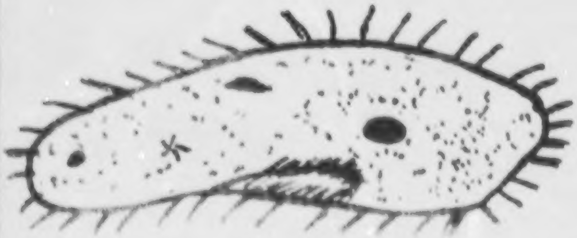
a. A shapeless mass of protoplasm

b. Lives in fresh or salt water, in moist soil, or in other animals as parasites.

. Moves by pushing out one side. As some of the protoplasm is pushed out forming pseudopodia (false feet), the protoplasm from the body rushes into the pseudopodia causing the anim animal to move forward.

d. The Amoeba surrounds its food with th pseudopodia.

PARAMECIUM - (pär à mē ́shĭ ŭm)



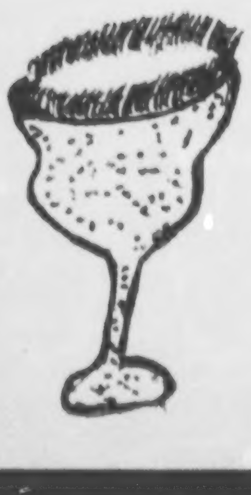
a. Common in stagnant ponds where it feeds on yeasts and bacteria.

b. It's body is transparent and slipper-shaped.

c. It has a groove-like mouth.

d. It is covered with cilia (tiny hairs) which it uses for moving and to guide food into it's mouth.

VORTICELLA - (vór ́ti ́sel ́a)



a. It moves by cilia.

b. It's cilia also makes a type of whirlpool that draws food into it's mouth.

c. It has a long stalk that acts like a spring to pull it back out of danger.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

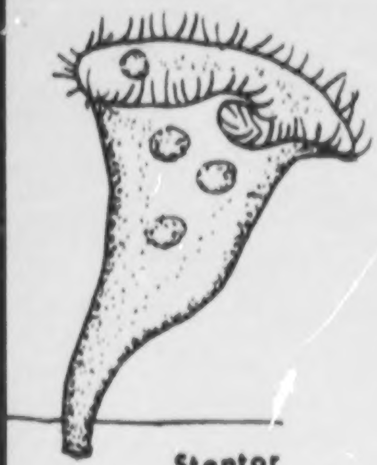
FORM 424

POND ANIMALS

(Protozoa - single cell)

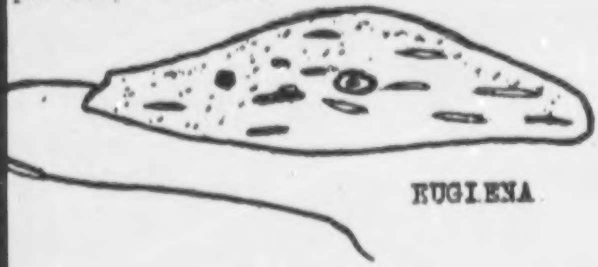
TENTOR (sten' tôr)

a. It also uses cilia for obtaining food and for moving.
b. It can shrink down to hide.
c. It has a dark blue body.
d. It is the largest of all Protozoa.
e. It likes to feed on Euglena.

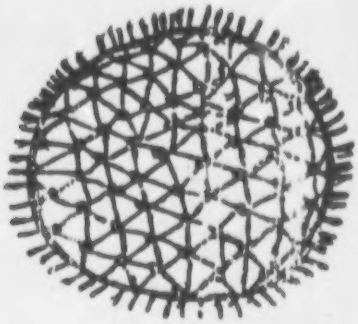


Stentor

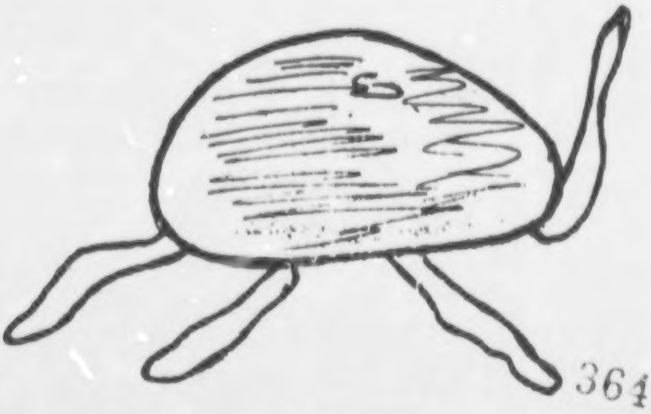
These are the most common Protozoa. See the pictures below for some others that may possibly be found.



EUGLENA



VOLVOX



ARCELLA

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM # 425

STUDYING FRESH-WATER ALGAE

Materials needed:

1. A large wide-mouth container
2. A medicine dropper
3. Dilute iodine solution
4. A microscope
5. Well slides or regular slides
6. Slide covers

Procedure:

1. Collect water from a pond in the wide-mouth container. (Gently remove some duckweed or other floating plants without disturbing the roots. This can be done by putting the container gently below the plant and slowly removing it from the water).

2. Keep the water at room temperature exposing it to sunlight several hours each day for five or six days.

3. Using a medicine dropper, place a drop of the water culture in the middle of a clean glass slide.

4. Add a drop of diluted iodine.

5. Place a slide cover gently over the drops of culture.

6. Follow the directions for "Use of the Microscope" described earlier.

The algae you will observe is the simplest water plant that contains Chlorophyll. These plants manufacture their own food in the form of a simple sugar. Since plants cannot store sugar in their cells, the sugar is changed by a chemical process into starch. The dilute iodine solution stains the starch to a blue-black color thus making the algae easier to observe.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM # 426

FRESH-WATER ALGAE

Investigation of Microscopic Pond Life

A. Pond Plants

1. Kinds

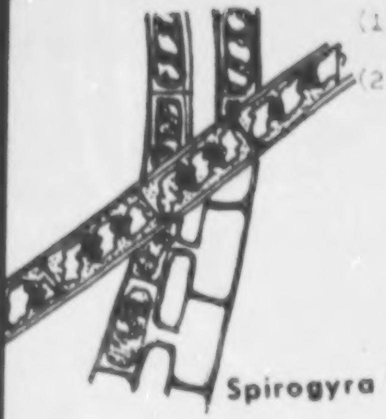
a. Green Algae

(1) Spirogyra - ribbon - like bands of chlorophyll twisting round and round.

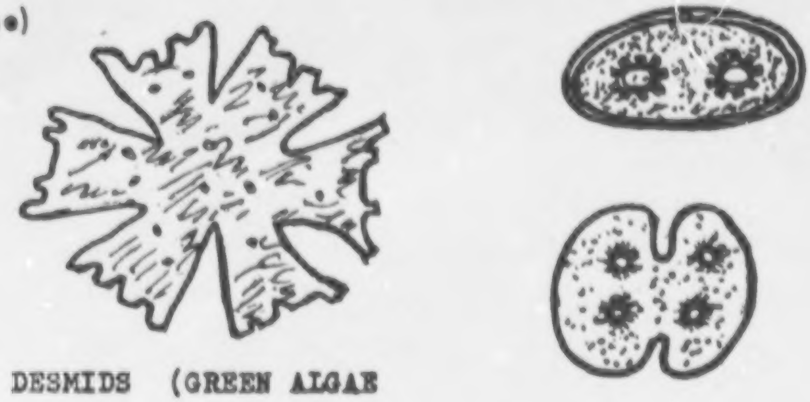
(2) Desmids - single cell, shaped like crescents, stars and triangles.

(a) Composed of two halves joined together by a narrow bridge.

(b) Has toothy-spines, projections, or other sculpturings.



Spirogyra (Algae)

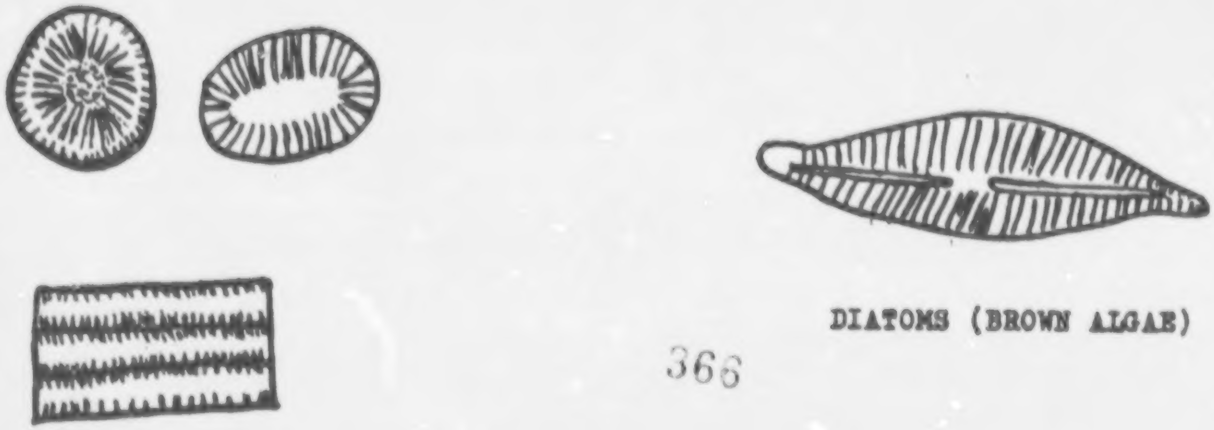


DESMIDS (GREEN ALGAE

b. Brown Algae

(1) Diatoms - shell-like structures. Half of the shell fits over the lower half like the cover of a box.

(2) The most abundant form of life in the water.

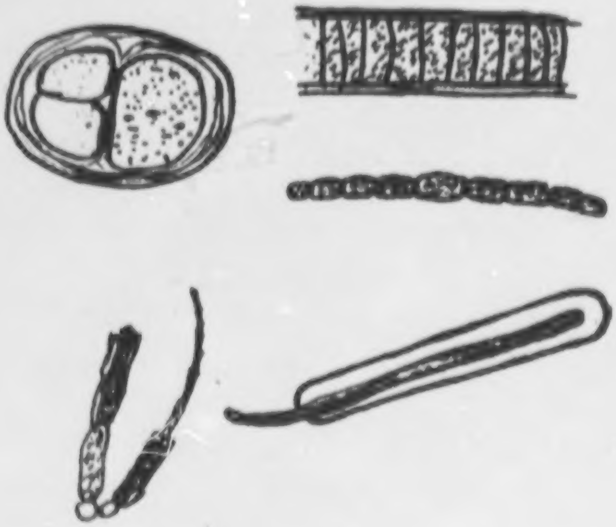


DIATOMS (BROWN ALGAE)

c. Blue-Green Algae

(1) Found in shallow ponds in the form of slimy growths.

(2) May be attached to each other in the form of a chain.



BLUE-GREEN ALGAE

2. Where found:

a. Plant stems rising from the bottom of a pond where sunlight strikes them.

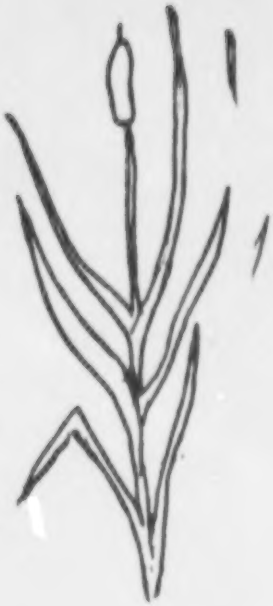
b. On the roots of floating plants such as duckweed.

c. Near the edge of a pond.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

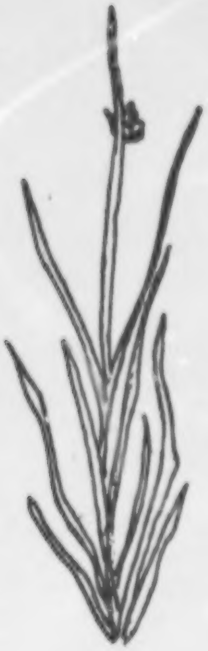
POND PLANTS

FORM # 428

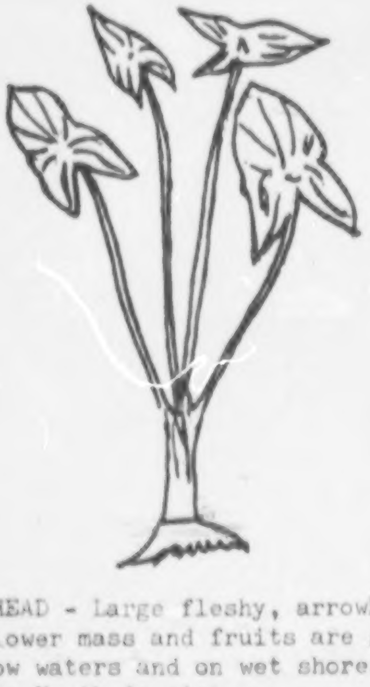


CATTAIL - Grows in eastern North America in fresh and brackish waters. Stem is slender, the leaves are rounded.

2.

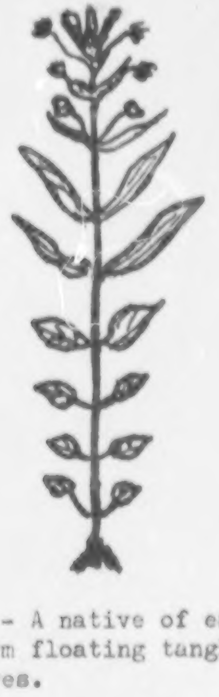


BULRUSH - Grow in marshes and along the shores. Stems, mainly leafless, and seed clusters arise in a clump from matted rootstock.



ARROWHEAD - Large fleshy, arrowhead-shaped leaves. The flower mass and fruits are greenish. Grows in shallow waters and on wet shores in central and eastern North America.

4.

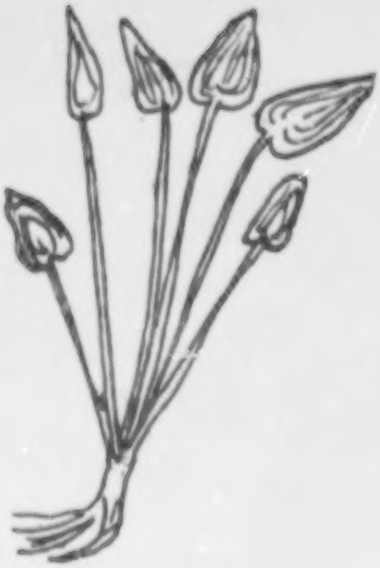


LOOSESTRIFE - A native of eastern North America, form floating tangles in ponds and wet shores.

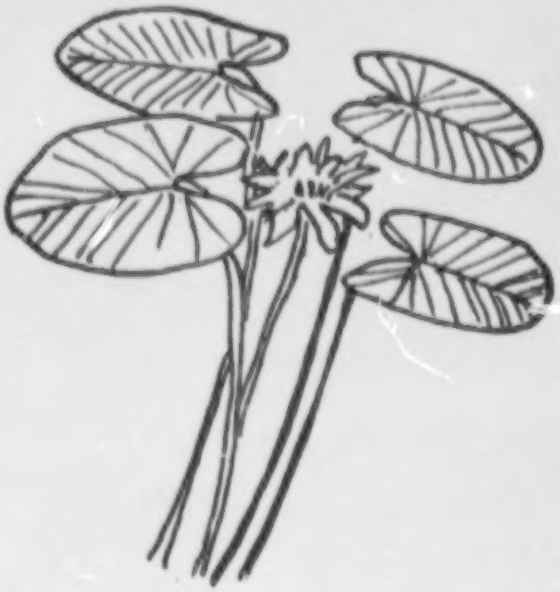
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

POND PLANTS

FORM # 429



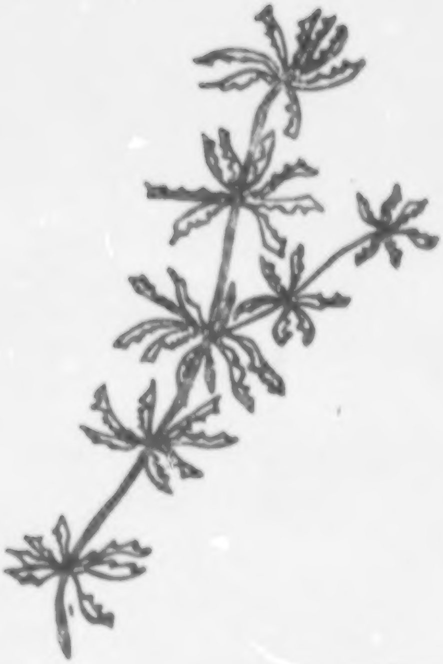
6.



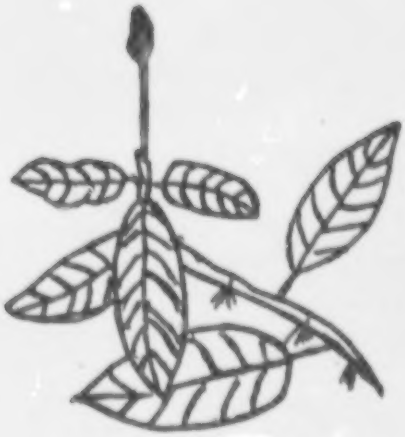
POND WEED - Has broadly rounded floating leaves and long, ribbon-like, submerged leaves. Fruit with almost no keel. It grows in quiet waters throughout North America.

WATER LILY - More than 100 species are found in shallow ponds. They grow from thick, granching rootstocks. Some are small, some have showy pink, yellow or white flowers and large flat, floating leaves that may cover a pond's surface. Small pond animals lay their eggs on the leaves and stems of water lillies.

7.



8.

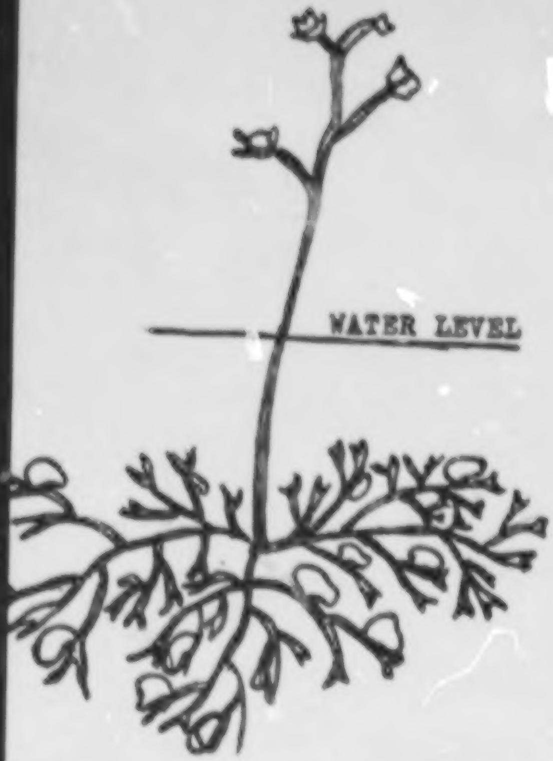


HORNWORT - Grows beneath the quiet surface of ponds throughout North America. It's branched leaves, brittle and crowded toward tip, are arranged in whorls around a slender stem. The seeds, eaten by water-fowl, have a tough covering.

SMARTWEEDS - A wide-spread species, has glossy leaves and spikes of greenish-white flowers along slender stems.

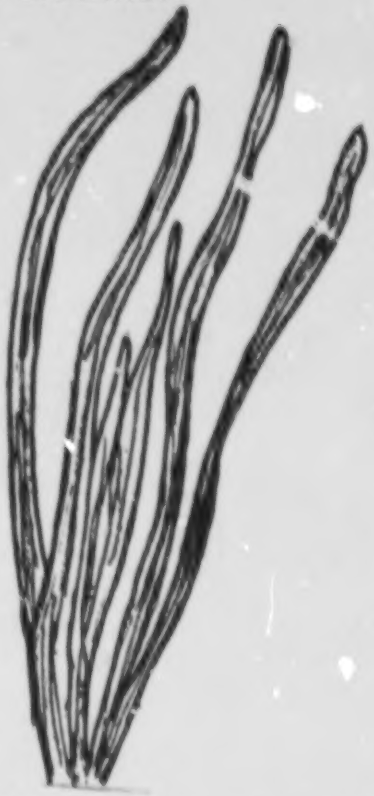
POND PLANTS

FORM # 430

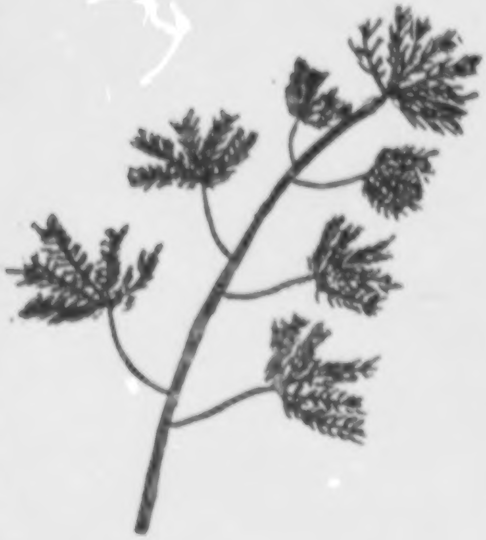


DDERWORT - A dozen species grow in central
eastern North America. Some bear on their
ches tiny bladders in which small animals
trapped.

10.

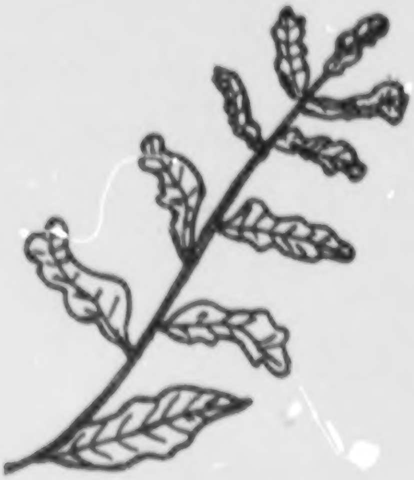


WILD CELERY - Grows in eastern North America.
The thick fleshy stems are a favorite water-
fowl food. After the floating flower is poli
nated a threadlike stem pulls it under water,
where fruit then ripens.

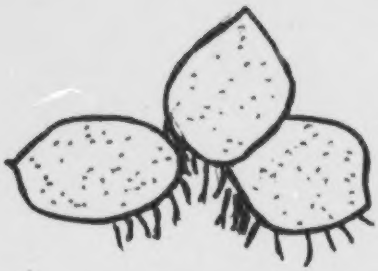


WORT - Has a slender stem covered with a
ly-like slime. A member of the water lilly
ily, with small flowers. Dense growths
bor many small animals.

12.

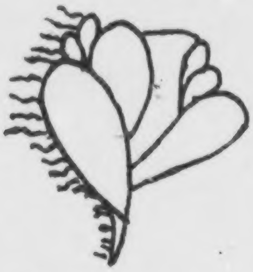


CRISP PONDWEED - Grows in clear and polluted
water. Crinkled, rather broad leaves are
submerged; alternate on lower stem,
clustered and opposite near tip. Fruit
beaked.

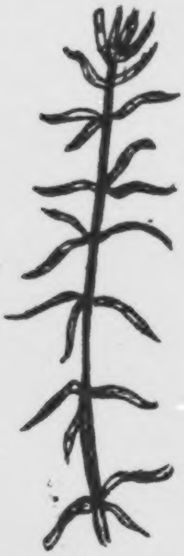


CKWEED - Tiny floating herbs, are a favorite od of waterfowl. There are about 25 species these smallest of the seed plants. Tiny owers, rarely produced, grow out of stems. production is mainly vegative, by a division the plant weed.

14.

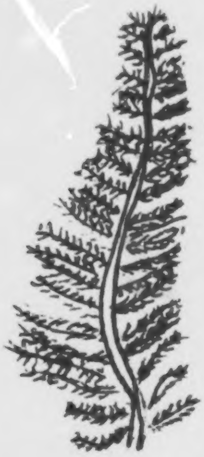


LIVERWORT - Grows in moist soil and rocks along shores, and a few species live in water. The body, or thallus, of some liverworts is flat and lobed (liver-like); in others it is branched and leafy.



ATERWEED - Leaves are in whorls or emerge from ootstock in a cluster. Grows in ponds and luggish streams of the northeast and Midwest

16.



WATER MILFOIL - Grows widespread in quiet waters and slow streams in most of North America. Its small purplish flowers grow near the stem tips where leaves may differ in size and shape from those at base.

INSECT STUDY

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 433

INSECT STUDY

Scientists tell us that about one million living animals have been found and named. Nearly seven hundred thousand of these are different kinds of insects. In fact, the number of beetles alone is greater than all other forms of animal life combined.

Existing in such huge numbers, they offer quite a threat to man in competing for the world's food supply. Man's future on this earth may very well depend on how well he understands the insect world - how well he fights his insect enemies and protects his insect friends.

The insect, because of the very nature of his structure, is especially well adapted for life. Drop a beetle from a height of 50 to 100 feet and he will crawl away with no harm done. Examining most any insect will prove interesting. He wears his skeleton on the outside while ours is inside. His soft body parts are inside his skeleton. We call his an exoskeleton. It is made of a hard, horny-like material more like our nails than our bones. As a result, he has no trouble whth broken bones in falling from a great height.

Although science is constantly developing new insecticides, we seem to have as many insect problems as we ever had. One reason for this is the exchange of insects from one country to another in spite of strict quarantine laws.

The United States Department of Agriculture is always on the look-out trying to keep new insect pests from foreign countries out, but they are not always successful.

Even though insects are pests in many ways, some of them are useful to man. Perhaps their greatest service is in cross-fertilizing flowers of our useful plants. Many plants depend almost wholly on insects for this work. Honey, silk, beeswax and shellac are a few items in world commerce that are contributed by insects. Their value as food for other animals is hard to estimate.

Because of the important role they play in our lives, and the fact that all of us will have to live and understand them better in the future, we had better find out some information about them.

MAKING AN INSECT COLLECTION

One of the best ways to get acquainted with some of our insect friends and foes is to make a collection of them. You have already had information given you about a collecting net, the display box and the killing jar.

After you net the insect, carefully transfer him to the killing jar. Most insects have a tendency to crawl or fly upward. Grasp the bottom of your net and let the live insects follow their natural instincts. Place your killing jar under the net bag and carefully work the insect over the mouth of the jar. With stinging insects care should be used!

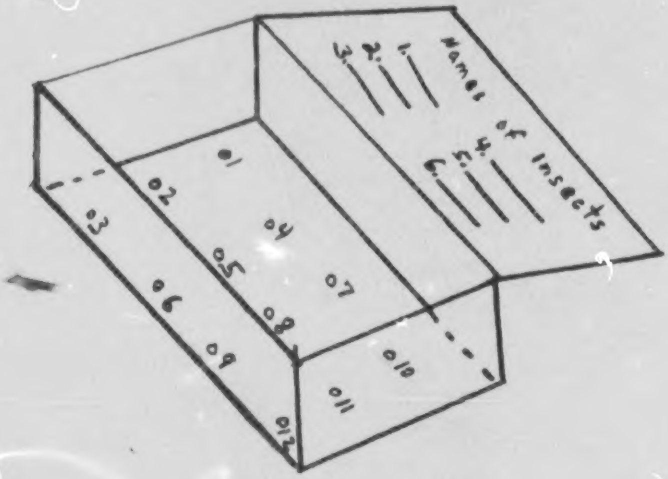
Butterflies and moths should not be placed in the killing jar with beetles or other crawling types of insects. The "crawlers" will tear up the beautiful wings of your moths or butterflies.

Also, strips of soft paper placed in bottom of killing jar will keep the moths and butterflies from beating their wings to pieces. They should be handled as little as possible. The scales which cover their wings and bodies are soon rubbed off by contact.

PINNING THE INSECT

Pins should be placed through the right side of the thorax or middle section of most insects. If they are smaller than a housefly, small triangles of heavy paper or light cardboard are used. The small insect is stuck on this paper with a drop of glue, and the triangle is mounted on a pin.

The bottom of your cigar box and the inside top surface of the lid should be covered with a sheet of plain white paper. The number is placed by the side of each pin. The paper cover on the inside lid of the box is numbered and the names of the insects placed after each number. The numbers in bottom of the box correspond to the ones on the lid making it easy to match names, numbers, and insects. [illegible] diagram for details.



IDENTIFYING YOUR INSECTS

Several books or guides will be available for use in helping you identify your insects. Since over 600,000 kinds are known, don't be discouraged if you cannot locate and find a name for all your insects. Many of them do not have a common name, only a scientific one. Surprisingly, new insects show up every year. Your instructors may be able to help you, but remember that only experts will know most of the insects. Whole books are published concerning only one group. To find pictures or diagrams of all insects would require a good-sized library. The experts have museum collections and libraries of books to identify their specimens as well as years of experience.

If you cannot find the specific name for each insect, usually it is sufficient to tell the order or group to which it belongs. While scientists who study insects, called entomologists, don't all agree, usually they recognize 20 to 25 large groups called orders. Most insects you find can be placed in ten to twelve common orders.

Below are orders recognized by some entomologists.

1. Thysanura - Silverfish, bristletails
2. Collembola - Springtails
3. Orthoptera - Grasshoppers, crickets, roaches, etc.
4. Isoptera - Termites
5. Ephemerida - Mayflies
6. Odonata - Dragon flies, damsel flies
7. Plecoptera - Stone flies
8. Neuroptera - Damsel flies, dobson flies
9. Thysanoptera - Thrips
10. Corrodentia - Book and Bark lice
11. Mallophaga - Chewing lice
12. Anoplura - Sucking lice
13. Dermaptera - Earwigs
14. Hemiptera - True bugs
15. Homoptera - Aphids, leafhoppers, cicados
16. Strepsiptera - Small parasites.
17. Mecoptera - Scorpion flies
18. Trichoptera - Caddis flies
19. Coleoptera - Beetles
20. Lepidoptera - Butterflies, moths
21. Diptera - Fliss, mosquitoes
22. Hymenoptera - Bees, wasps, ants
23. Siphonaptera - Fleas

One of your problems in naming your insects will be in determining whether the specimen is really an insect. Several insect relatives can cause you trouble. Remember that insects have three pairs of legs attached to the thorax or middle section of the body. Spiders have four pairs of legs but no wings. Most insects have two pairs of wings fastened to the top side of the thorax. Some insects such as worker ants or immature insects, may have no wings at all. The flies appear to have only one pair of wings, but careful examination will show a place on their bodies where another pair evidently was found in their ancestors.

A magnifier is useful in examining your specimens.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
INSECT STUDY

FORM# 436

PRESERVING YOUR INSECTS

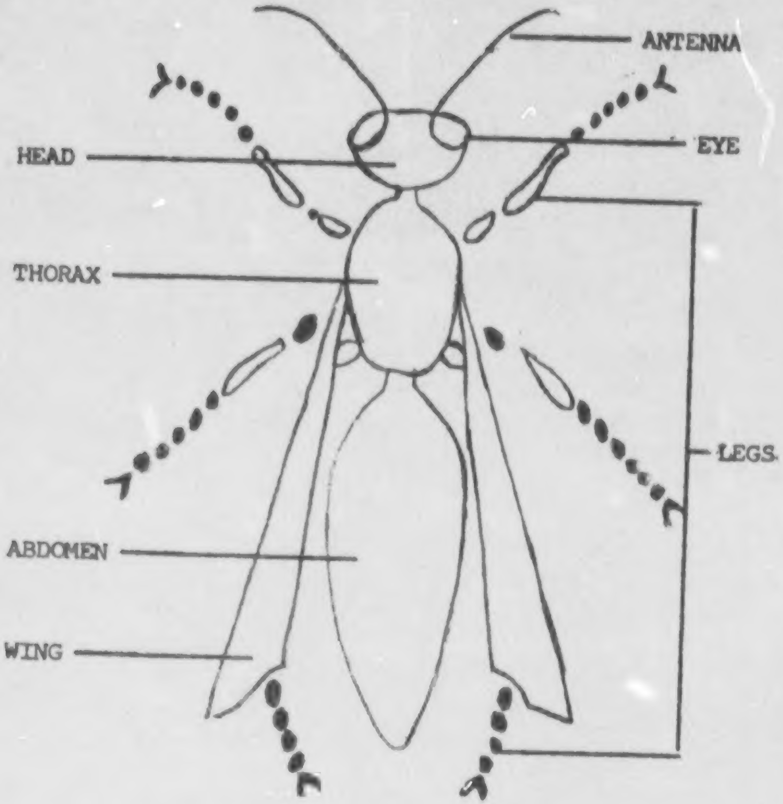
The biggest problem the museums have is keeping live insects from eating the preserved collections. In your box it will be wise to place a moth ball on a pin in one corner. If you mount your insects on a cotton surface, flakes may be used. These can be purchased at a drug store or market.

KILLING INSECTS

Some insects are easily killed while ones such as beetles will live for days in most chemicals except cyanide. They live for hours in this deadly poison. Many good insect sprays are on the market today. We would suggest you purchase an insecticide spray can before setting out on a collecting trip. Pinching the thorax of moths and butterflies may be the quickest and simplest way of killing them. Dropping the whole insect in the killing fluid may work best for some such as beetles. Do not wet moths and butterflies as it will ruin the patterns. Fingernail polish remover may be useful in killing some insects.

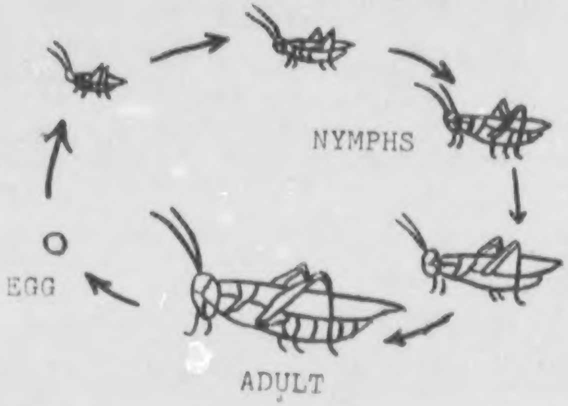
Small pill vials or bottles of plastic in various sizes can be bought at drug stores. Many kinds of insects can be placed in these bottles for permanent storage. This is the standard method of mounting most immature insects. Caterpillars are difficult to work with. We would advise the beginner to limit himself to mature insects.

PARTS OF INSECTS

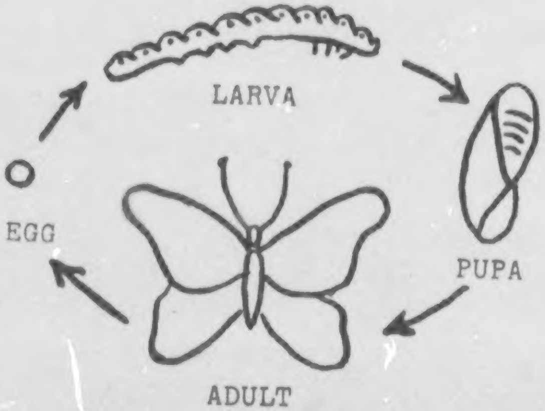


The insect's small body is flexible and well armored. This has much to do with its success in staying alive. A protective hard shell, lighter in weight than bone, covers the many segments that form three main body regions: head, thorax, and abdomen. Other parts are antennae and eyes found on the head; wings and three pairs of jointed legs attached to the thorax.

Insects thrive because they are able to adapt themselves to the world as they find it. This is clearly shown in their ingenious ways of reproduction. Most insects grow from egg to adult by means of one of two schemes, i.e., gradual growth or complete change. The eggs are deposited near a food supply, and for most insects the growing-up process occurs without help from the parents.



The grasshopper is an example of gradual growth. The egg hatches, and the tiny insect resembles the adult minus fully developed wings. Through a molting process, the insect sheds its hard skin several times as it grows from the young nymph to the adult.



The familiar butterfly is an example of complete change or metamorphosis. From the egg comes the caterpillar, which when fully grown transforms into a pupa or cocoon stage, from which later emerges the pretty butterfly seen flitting about.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 438

ANIMAL STUDY

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION **FORM#** 439

GROUP # ________

STUDENT NAME ____________

HOW TO STUDY AN ANIMAL

(To be given as a Report by your Cabin Group)

COMMON NAME ____________ Meaning ____________ in ________ Language.

1. Coloration, Size, and General Description:

2. What is the Habitat of this animal? Circle answer:

Forest Prairies Marshes Fields
Sloughs Streams Ponds Other ________

3. What kind of Home does it make? Circle answer:

Tree Ground Den Nest
Hive Tunnel Other ________

4. What is its Food ? Circle answer:

Plants Seeds Insects Birds
Earthworms Snails & Slugs Larvae
Fish List other animals ____________

5. Does this animal Hibernate? YES NO

6. If it does not hibernate, compare:

Winter Activities	Summer Activities

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
How to Study and Animal

FORM# 440
page 2

7. What is its Protection? Circle answer:

Running Jumping Hopping Flying
Dodging Biting Kicking Striking
Crushing Signaling List Others: ____________

8. Does nature provide additional type of protection, if so what? Circle answer:

Coloration Armor, Mimic Sounds, Ferocious appearance,
Disagreeable odors, Strong running ability, List Other ____________

9. What are its Enemies? Circle answer:

Snakes, Hawks, Owls, Skunks, Foxes, Man,
List others ____________

10. Voice and Sound, (or other way of communication)

High-pitched squeals, Harsh gutteral, Squeaks - short,
Snorting sounds, Grating of teeth, List other ____________

11. Unusual items of information:

12. REPRODUCTION: Mates when ? ____________
Gestation or Incubation time: ____________
Size of Litter, Clutch, School; ____________
Offspring independent at what age? ____________
Annual rate of growth? ____________
Average life span ? ____________

13. Importance or Use:

14. Bibliography: List books or other materials used in finding information.

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 441

ANIMAL STUDY SCORE-SHEET

	Possible points	CABIN 1	CABIN 2	CABIN 3	CABIN 4	CABIN 5	CABIN 6	CABIN 7	CABIN 8	CABIN 9	CABIN 10	CABIN 11	CABIN 12	CABIN 13	CABIN 14	CABIN 15	CABIN 16
COMMON NAME	1																
COLORATION	1																
HABITAT	1																
KIND HOME	1																
FOOD	1																
HIBERNATION	1																
Winter/Summer Activities	1																
PROTECTION	1																
ADD. PROTECTION	1																
ENEMIES	1																
VOICE/SOUND	1																
UNUSUAL INFO	2																
REPRODUCTION: Mates when? Gestation Litter size Independent age Growth rate Life span	3																
IMPORTANCE	1																
BIBLIOGRAPHY	3																
STYLE OF PRESENTATION	5																
TOTAL SCORE	25																

WINNING SCORE ____________

1st place BOY Cabin # ____________

2nd place BOY'S cabin # ____________

1st place GIRL Cabin # ____________

2nd place GIRL'S cabin # ____________

SPECIAL ACTIVITIES

Form # 443

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

NATURE SCAVENGER HUNT

In this hunt the campers must first read the clues and write answer below; then find and collect item. Points will be given for each correct written answer and items collected.

1. Once I flew but no longer do. ______________
2. A mobile home but empty now. ______________
3. An adornment from an acorn maker. ______________
4. Smooth and round from water power. ______________
5. A little creeper, soon a sleeper. ______________
6. I 'am gathered by an animal and stored for future meals. ______________
7. A wiggly, red, and useful dish for robins and some kinds of fish. ______________
8. Soft and green little mounds on North side of trees I 'am found. ______________
9. Our state rock am I. ______________
10. I am a petal from our State Flower. ______________
11. I am a leaf from our State Tree. ______________
12. Elves sometimes sit upon these. ______________
13. The leaf from a tree that is sometimes used to make tea. ______________
14. Something that hops in the grass. ______________
15. The product of an Oak Tree. ______________
16. Something that crawls and will earn you points in the Camp Mo-Val Olympics. ______________

TOTAL ______________

Form # 444

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

SCAVENGER HUNT

Hickory nut

Walnut

Acorn

Dogwood berry

Butterfly

Beetle

Live grasshopper

Ladybug

Grub worm

Angle worm

Termite

Live ant

Stink bug

Caterpillar

1 x 1 piece reindeer lichen

Toadstool

Mushroom

Persimmon

Stem goldenrod

Apple rust gall

Sedimentary rock

Oak leaf

Dogwood leaf

Hickory leaf

Sassafras leaf

Mulberry leaf

Pine needle

Grape leaf

RULES: Two cabins per counselor

Porter will hold all items collected by cabin

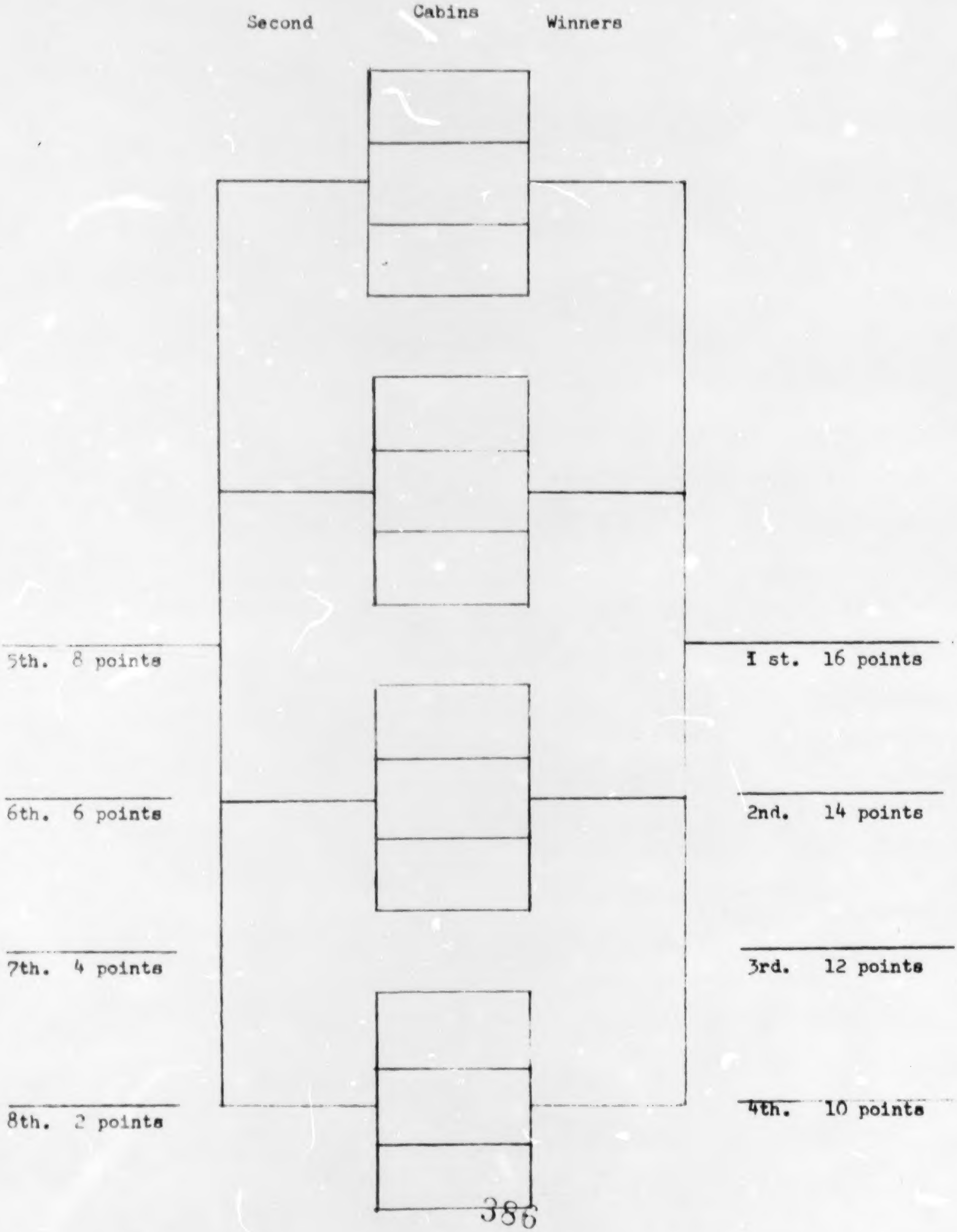
Stay with counselor

Do not enter any buildings

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 445

Camp Mo-Val. Turtle Race


Second
Cabins
Winners
5th. 8 points
6th. 6 points
7th. 4 points
8th. 2 points
I st. 16 points
2nd. 14 points
3rd. 12 points
4th. 10 points

TUG-OF-WAR

	W	L
Cabin#___		
Cabin#___		
Cabin#___		
Cabin#___		
Cabin#___		
Cabin#___		
Cabin#___		
Cabin#___		

Cabin#___ 1st place = 8 points

Cabin#___ 2th place = 6 points

Cabin#___ 3th place = 4 points

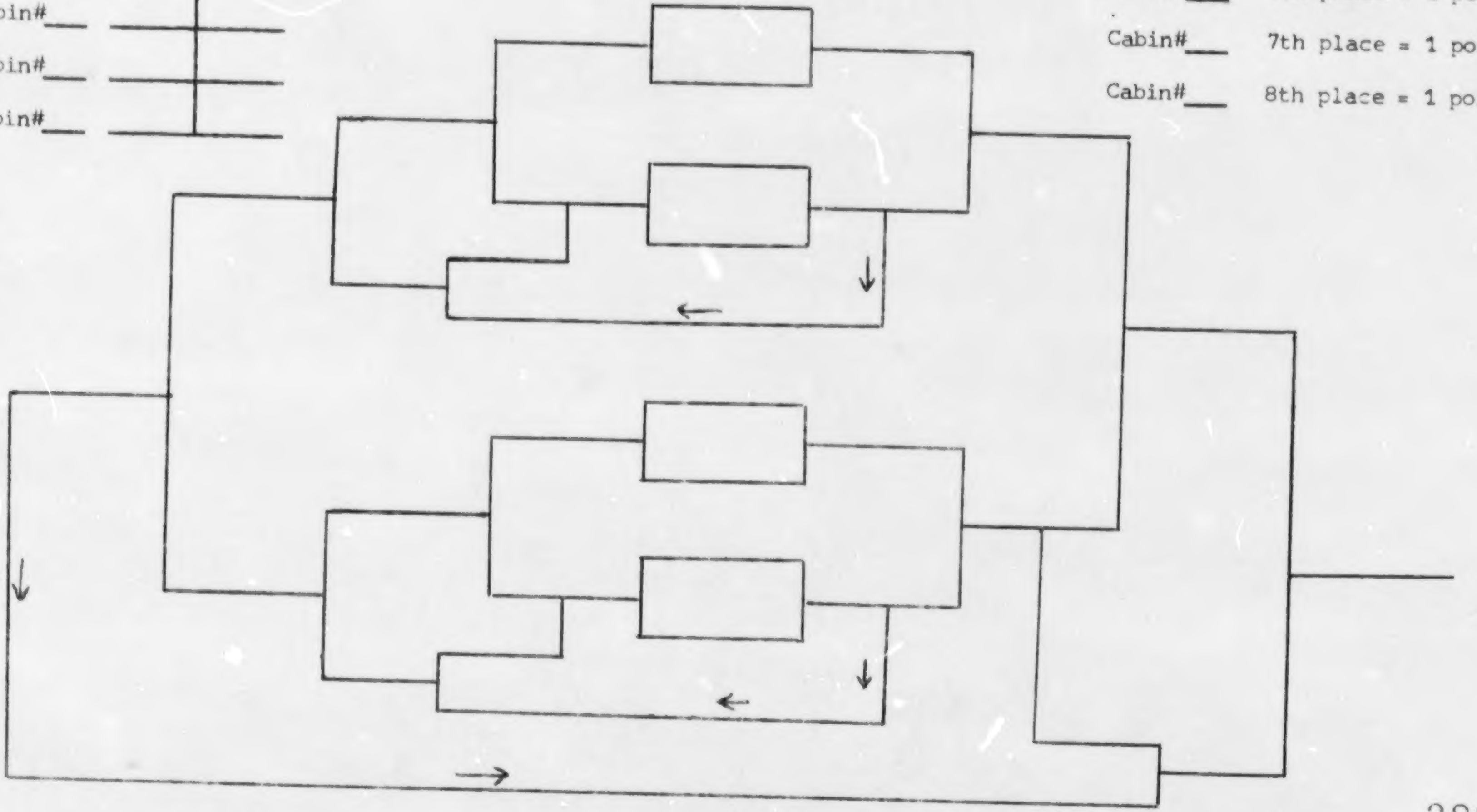
Cabin#___ 4th place = 2 points

Cabin#___ 5th place = 1 point

Cabin#___ 6th place = 1 point

Cabin#___ 7th place = 1 point

Cabin#___ 8th place = 1 point



LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 447

How To Make and Fill a Terrarium

TERRARIUM is the name for a small indoor glass-enclosed garden. Such a garden may contain small plants in interesting arrangement. A terrarium may be made in a clear glass bowl, a gallon jug, or in a rectangular glass container with a cover. Terrariums last for more than 12 months if properly prepared.

PREPARE A TERRARIUM

A. Clean container

B. Place a layer of small pebbles on the bottom for drainage.

C. Add a few pieces of broken charcoal to keep the terrarium sweet.

D. Prepare soil mixture made up of equal parts of loam, fresh-water sand and peat moss.

E. Put mixture in carefully, handful by handful.

F. Then moisten soil mix thoroughly, but do not make it muddy.

G. Wipe the sides of the glass container before setting in the plants with newspaper.

H. Now add plants.

WHAT TO USE: Collect common plants, dig carefully, here and there, not in same spot; keep moist. A can with a wire handle is good for collecting. Ferns of different sizes and shapes and small (3"high) evergreen seedlings for the taller plants of the terrarium. Vines, various mosses and lichens, and other tiny common plants.

Set the completed terrarium in a light place, but not where sun will strike it. With the glass container closed, such a "balanced terrarium" preserves temperature and moisture inside. Open the lid if the glass clouds with moisture. Set back and watch for added growth!

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 448

QUIZ ANSWER SHEET

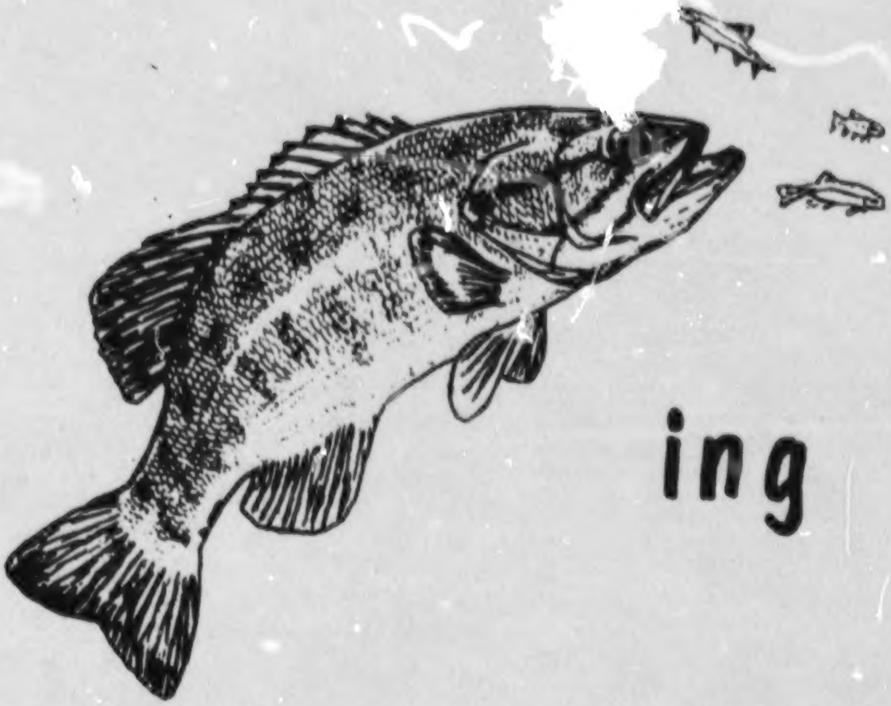
GROUP ____________________ #

RECORDING SECRETARY ____________________

	Correct	
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		
26.		
27.		
28.		
29.		

Form # 449

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION



ing

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 450

FISHING EQUIPMENT LIST

Teaching tools, supplies and equipment are available in the blue trailers. Areas are marked on outside of doors.

Teacher and student lesson plus forms are available in the upright boxes in Lodge.

It is suggested counselor and/or teachers secure the necessary forms before assembly of students.

Materials and equipment to be utilized on field trip can be carried by "Porters" after being secured by counselor and/or teacher from the trailer.

Upon completion of the activity please SEE that the equipment is returned to its proper place for the NEXT group's usage.

FISHING:

Fish Picture Form# 453
Internal Form# 453 - top diagram
External Form# 453 - bottom diagram

Rods
Reels
Bait
Floats

Tackel Box
Weights
Hooks

LINBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 451

FISHING RIG

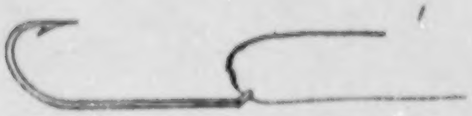


FIG. 1 Put end of line through eye of hook 6 inches and double back

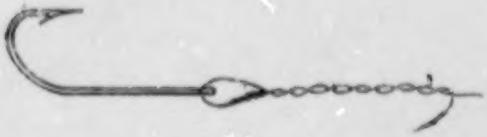


FIG. 2 Then coil around line 5 times

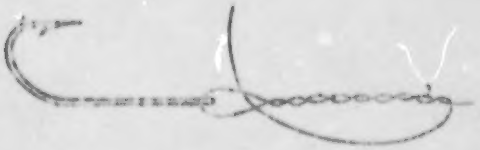


FIG. 3 Tuck end of back up between the eye of hook and coils

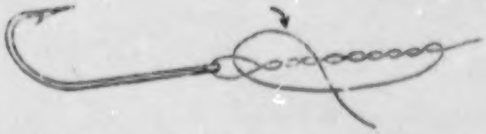


FIG. 4 Then back through the big loop you just made

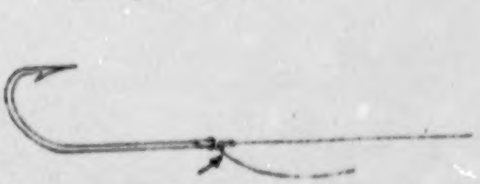
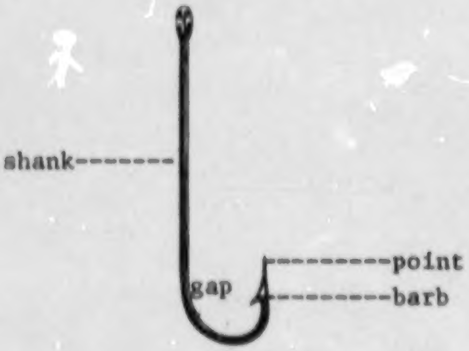
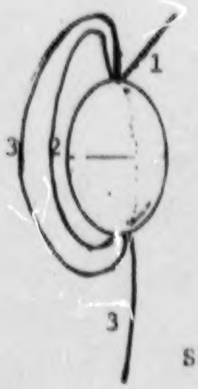


FIG. 5 Pull up tight and trim end.

CONGRATULATIONS! YOU HAVE JUST TIED AN IMPROVED CLINCH KNOT!!!



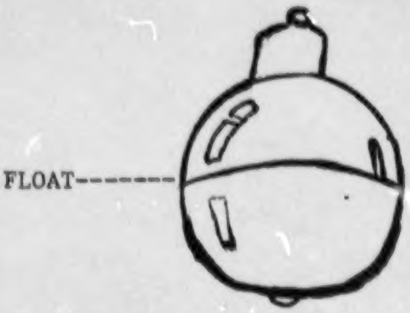


SINKER/WEIGHT

A. Thread line through egg sinker leaving 18 inches of line above end. Then loop back twice through sinker - Pull tight

B. Tie on hook, see FIG. 1-5 ←-------

C. Add float by pressing down on top and hooking halter to line at least 10 inches above sinker/weight.



LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

FORM# 452

THE ONE I CAUGHT-- WAS THIS BIG!

540

DATE	NAME	ADDRESS	SCHOOL	KIND OF FISH SPECIES	WEIGHT	LENGTH

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 453

DIAGRAM OF FISH

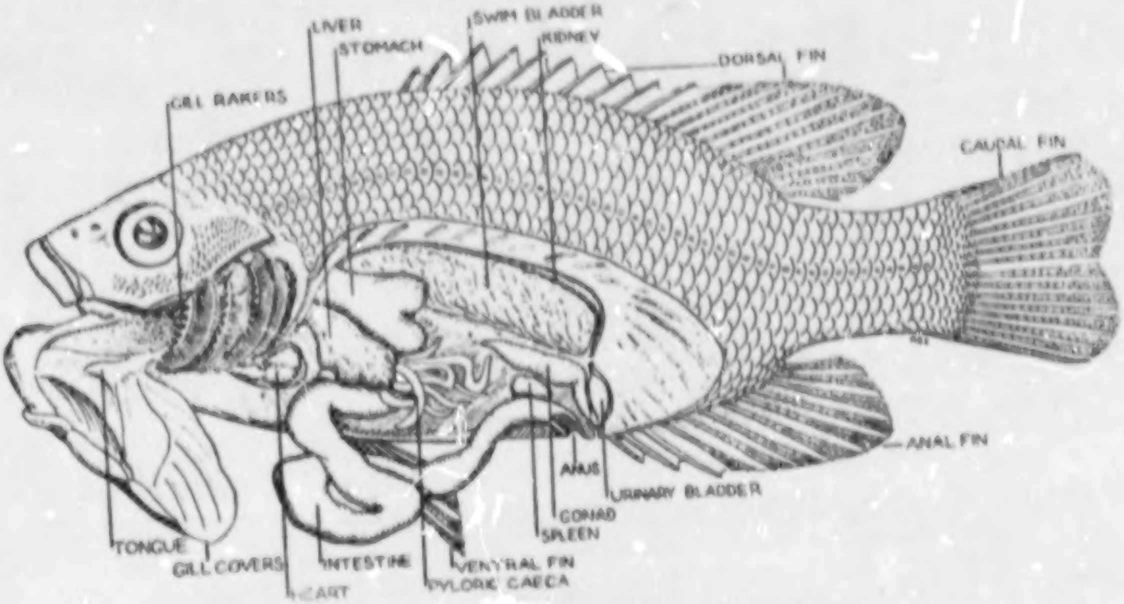
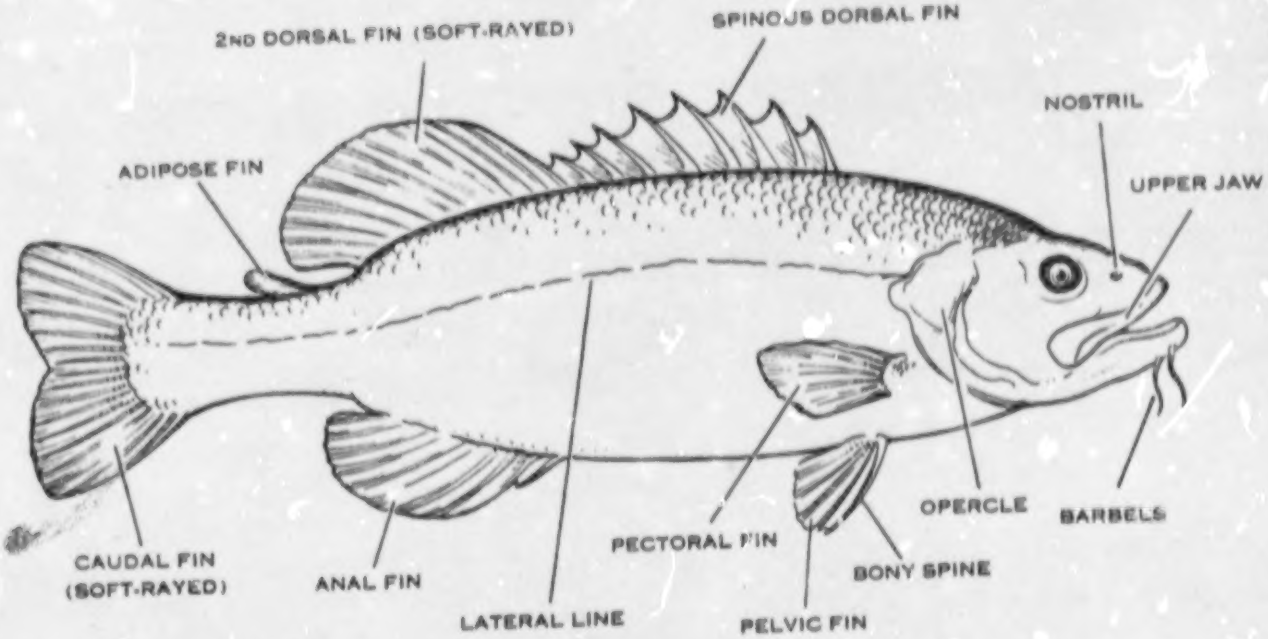

LIVER
SWIM BLADDER
STOMACH
KIDNEY
DORSAL FIN
GILL RAKERS
CAUDAL FIN
ANAL FIN
ANUS
URINARY BLADDER
GONAD
SPLEEN
TONGUE
GILL COVERS
INTESTINE
VENTRAL FIN
HEART
PYLORIC CAECA

Fig. 3. Dissection of the green sunfish showing internal organs.


2ND DORSAL FIN (SOFT-RAYED)
SPINOUS DORSAL FIN
NOSTRIL
ADIPOSE FIN
UPPER JAW
OPERCLE
BARBELS
PECTORAL FIN
BONY SPINE
CAUDAL FIN (SOFT-RAYED)
ANAL FIN
LATERAL LINE
PELVIC FIN

ARCHERY

PHYSICAL EDUCATION

Form# 461

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
CAMP MO-VAL OLYMPIC RELAY RACE

It is very important that the campers and counselors know how to run the relay race. Line the campers up by cabins outside the recreation room. The campers will line up in order, with Bunk One in front. Give a baton to the first person in each line. Explain that each person will give the baton to the person behind them. The last person will give it to the front person.

Explain where the person from each bunk will be stationed at around the lake. (See accompanying diagram). Send a counselor with each group. Several counselors can be positioned along the hazardous part of the race course. All persons walk to their assigned positions.

After the starting signal, runner One gives the baton to runner Two. One stays at that station. Two carries the baton to Three. The baton continues around the lake, going from one runner to the next.

The baton will go around the lake six times with the runners advancing to the next station each time until they are finally back at their starting positions. The first runner back is the winner. Boys and girls are running at the same time but they are not competing against each other.

If the weather is warm, different forms of locomotion can be used. Such as walking, skipping, galloping, etc. The counselors must make sure that the racers move the way they should between each station.

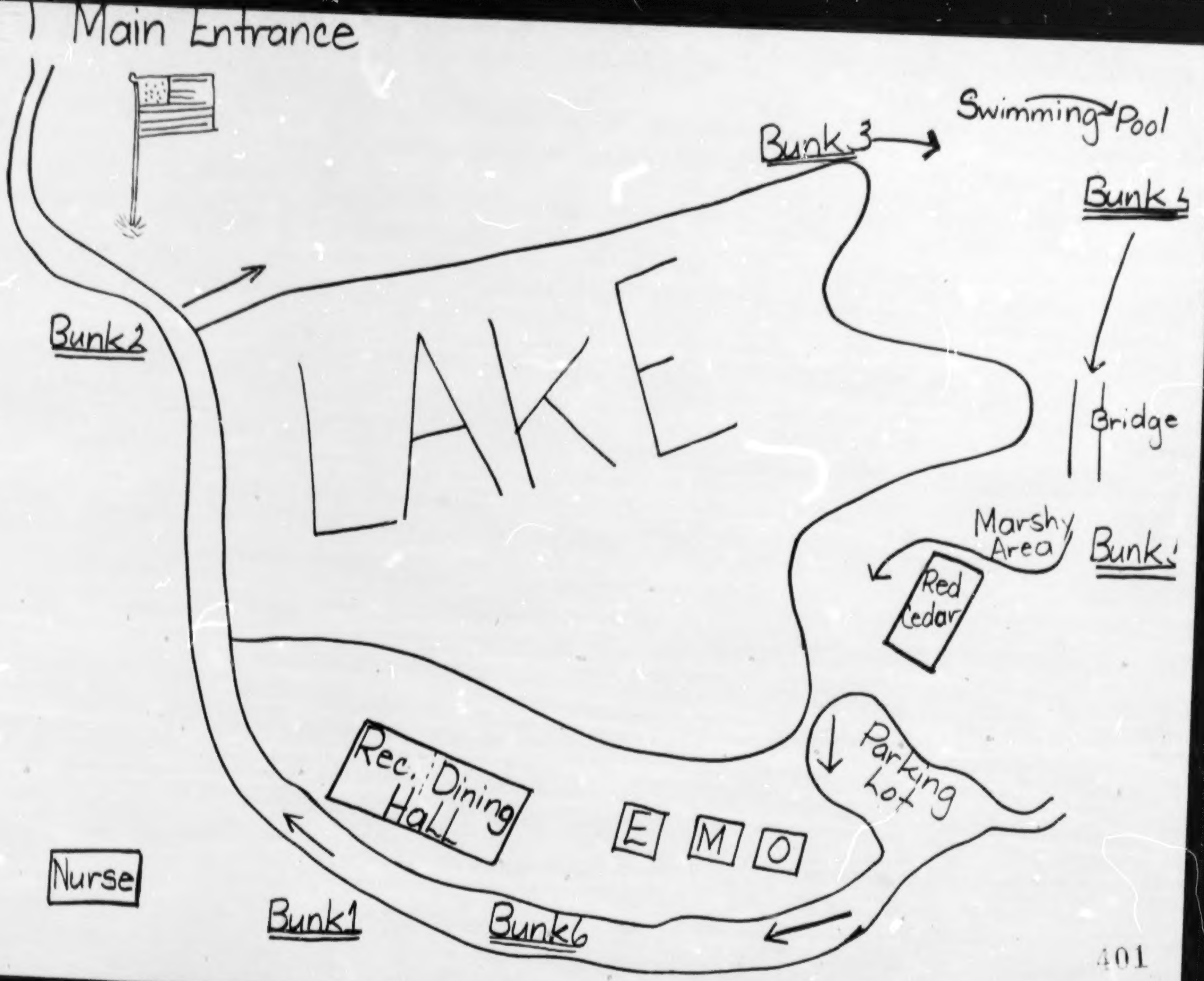
Points for the Camp Mo-Val Olympics can be given in this order:

First	place	- 10	points
Second	"	- 7	"
Third	"	- 5	"
Fourth	"	- 3	"
Fifth	"	- 1	"

Richard Cooley
Phy. Ed. Instructor
Kennerly School

Form # 462

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION
OLYMPIC RELAY RACE MAP


Main Entrance
Swimming Pool
Bunk 3
Bunk
Bunk 2
LAKE
Bridge
Marshy Area
Bunk
Red Cedar
Parking Lot
Rec. Dining Hall
E
M
O
Nurse
Bunk 1
Bunk 6

ART

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 500

EVALUATION FORMS

Form # 501

LINDBERGH OUTDOOR EDUCATION PROGRAM

Student Evaluation

AME ______________________ HOME SCHOOL ____________

ROUP NO. AT CAMP ________ DATE ______________________

ounselor's Name ______________ Home School Teacher ____________

. Activities I participated in at Camp:

________ ________ ________ ________

________ ________ ________ ________

________ ________ ________ ________

. The Activities I enjoyed most were:

________ ________ ________ ________

________ ________ ________ ________

. The most interesting thing I learned was ______________________

____

____

. The experience I am anxious to tell my parents when I return home is: ____________

____

____

. If I go to Camp again I would like to do these things: (You may also list activities we did not have this year.)

________ ________ ________ ________

________ ________ ________ ________

________ ________ ________ ________

. The thing I shall remember about Camp Mo-Val is: ______________________

____

____

FORM# 502

CHANGES FOR THE IMPROVEMENT OF
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Changes have been implemented due to a careful critical analysis by the staff of our ongoing program. Keep up the flow of ideas!

1. Did the program accomplish your objectives?

2. What were the strong points?

3. What, if any, other activities would you include in this activity?

4. Would you suggest any modifications in the activity? If so, describe.

5. Can the staff improve correlation between classroom preparation and your students experiences?

6. Research questions for students.

7. Research questions for staff.

MISCELLANEOUS FORMS

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 504

CAMP
MO-VAL

LINDBERGH SCHOOL DISTRICT

This is to certify that ______________________________

has satisfactorily completed the course

in outdoor education

____

______________________ ______________________

SCHOOL OFFICIAL

Form # ________

CAMP
MO-VAL

LINDBERGH SCHOOL DISTRICT

This is to certify that ______________________________

has satisfactorily completed the course

in outdoor education

____

______________________ ______________________

SCHOOL OFFICIAL

CAMP MO-VAL

Lindbergh School District

This is to Certify

that ______________________________

has been awarded this certificate

for ______________________________

Given this ________ day of ______________ 19 ______

______________________ SCHOOL

______________________ OFFICIAL

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

Form # 505

CAMP
MO-VAL

CAMP MO-VAL

Lindbergh School District

This is to Certify

that ______________________________

has been awarded this certificate

for BEING A MEMBER OF THE WINNING TEAM IN THE MO-VAL OLYMPICS

Given this ________ day of ______________ 19 ______

______________________ ______________________

SCHOOL OFFICIAL

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM # 506

CAMP MO-VAL

Lindbergh School District

This is to Certify

that ____

has been awarded this certificate

for BEING A MEMBER OF THE TEAM PLACING SECOND IN THE MO-VAL OLYMPICS

Given this ________ day of ______________ 19 ______

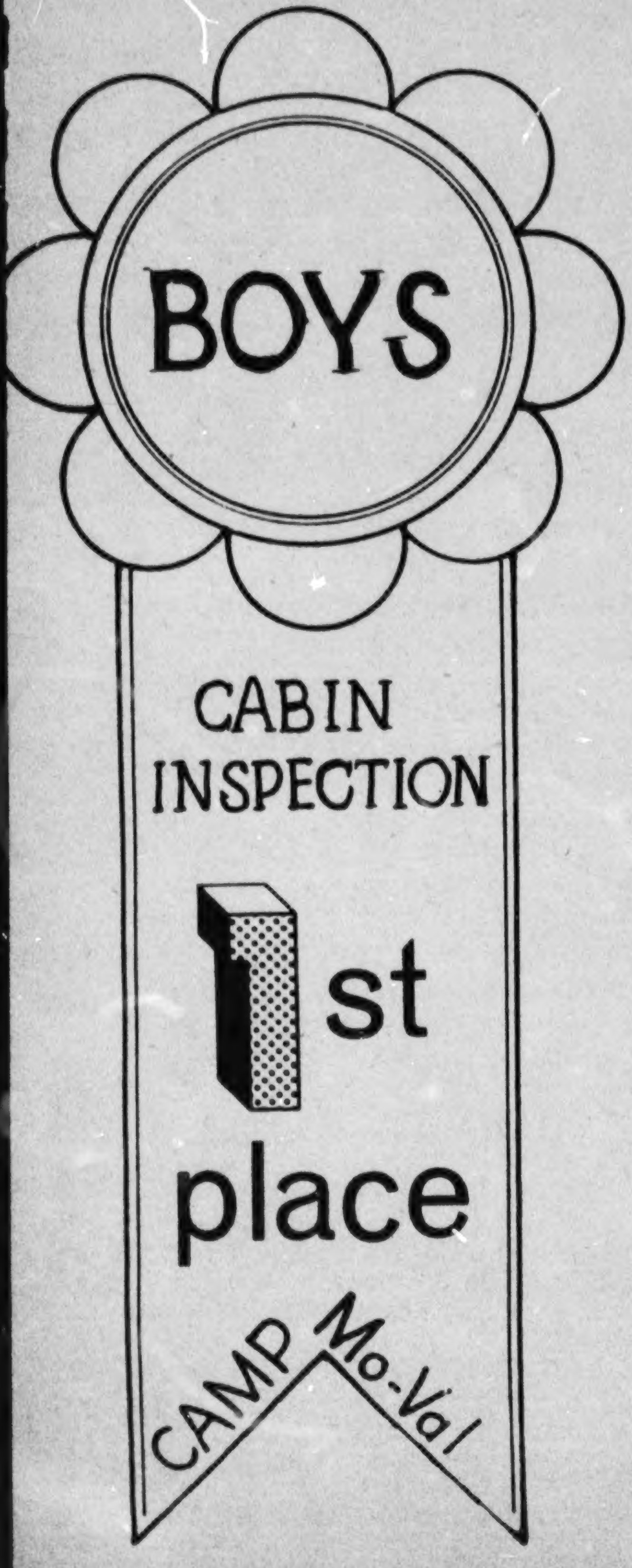
______________________ SCHOOL

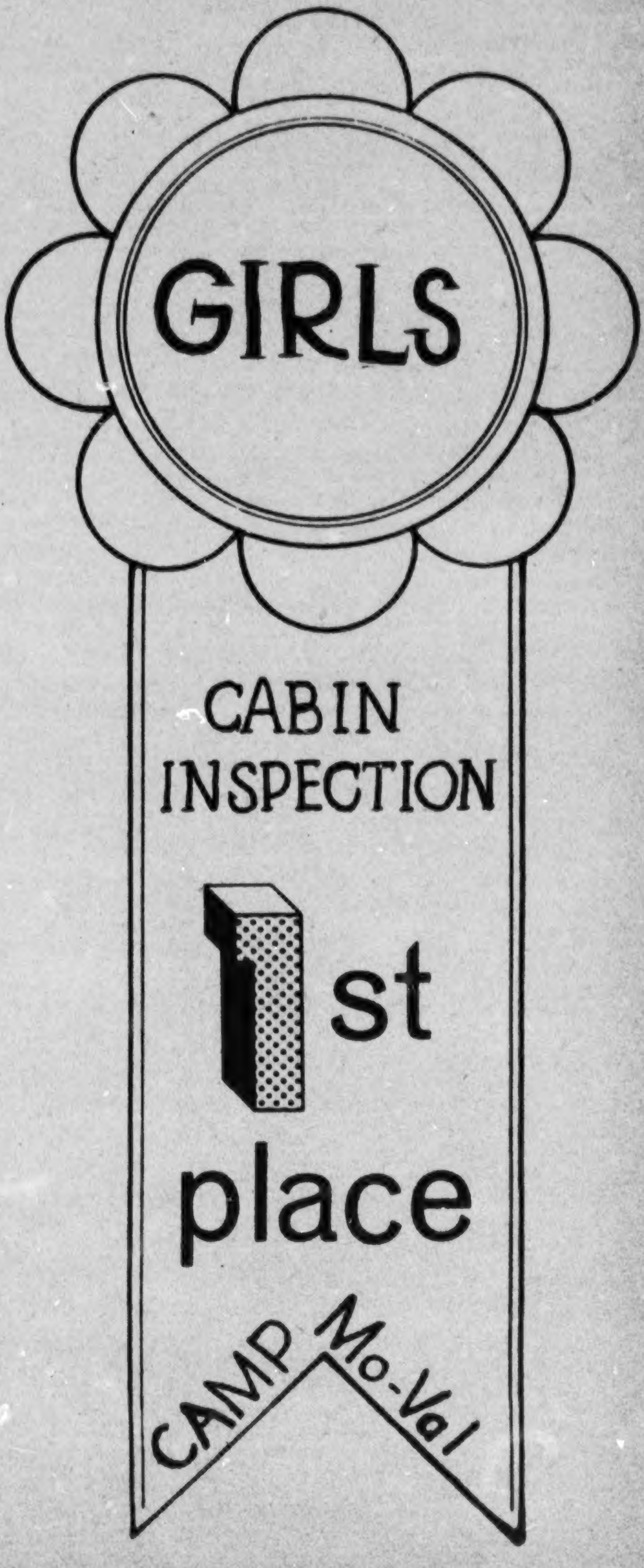
______________________ OFFICIAL

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION

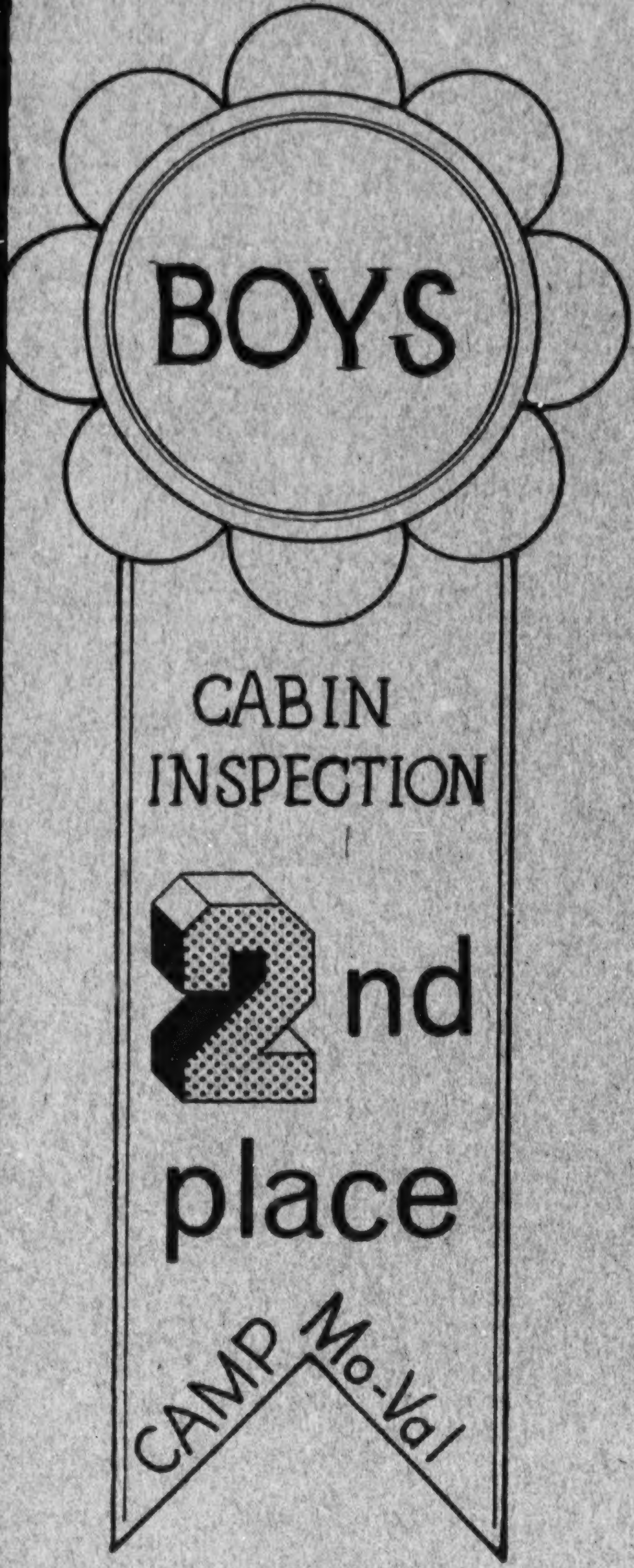
FORM# 507

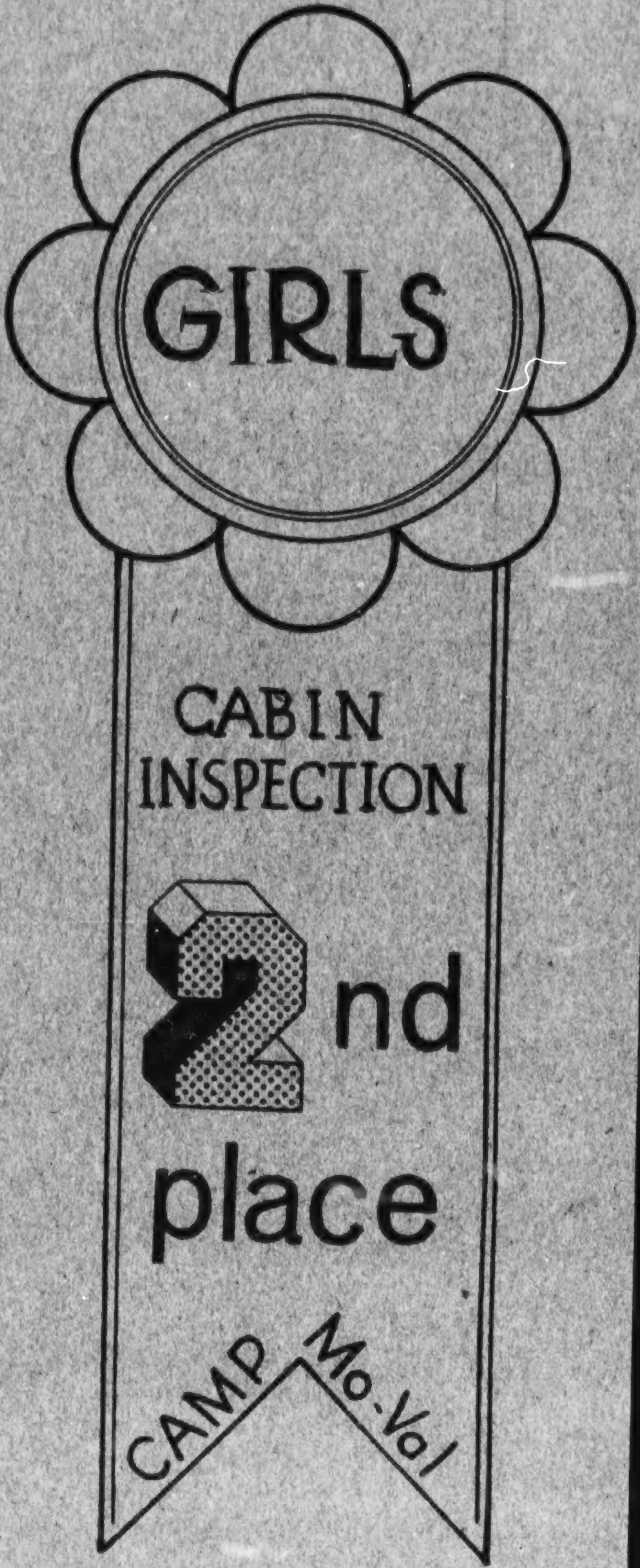
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 508


BOYS
CABIN
INSPECTION
1st
place
CAMP Mo-Val

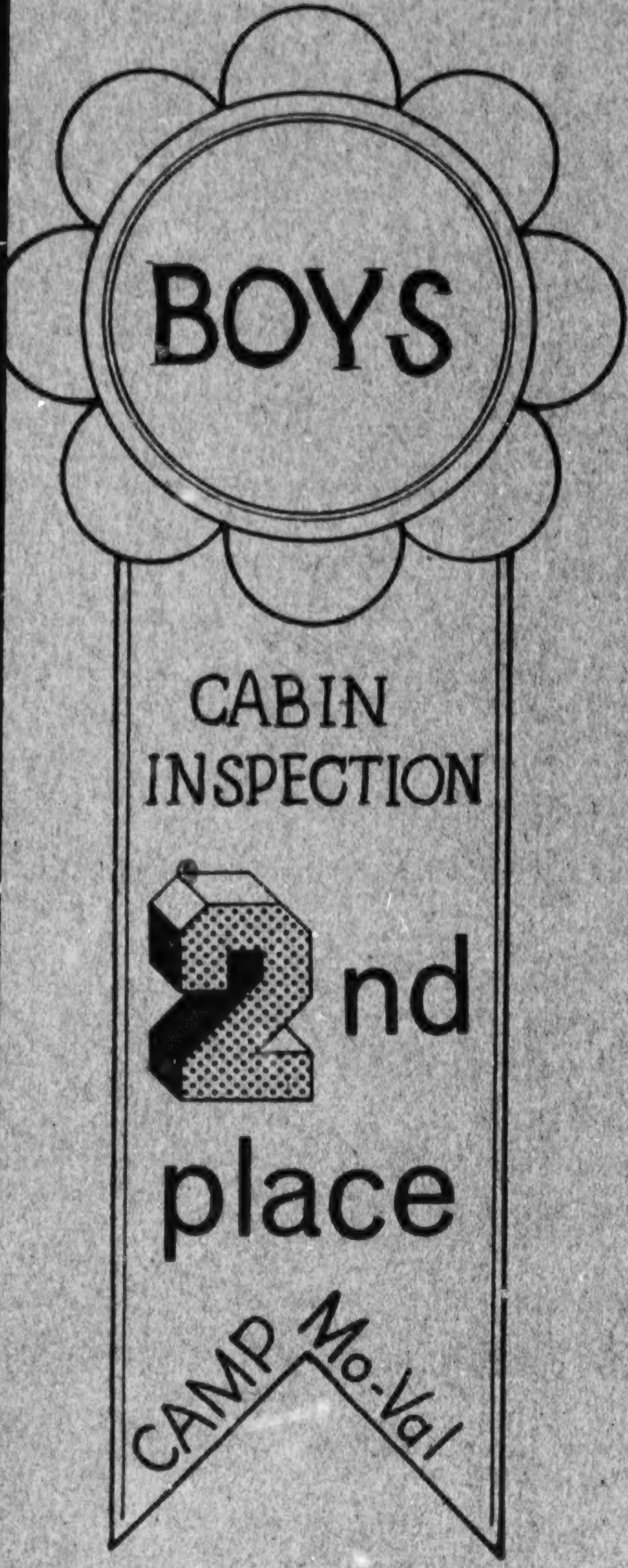

GIRLS
CABIN
INSPECTION
1st
place
CAMP Mo-Val

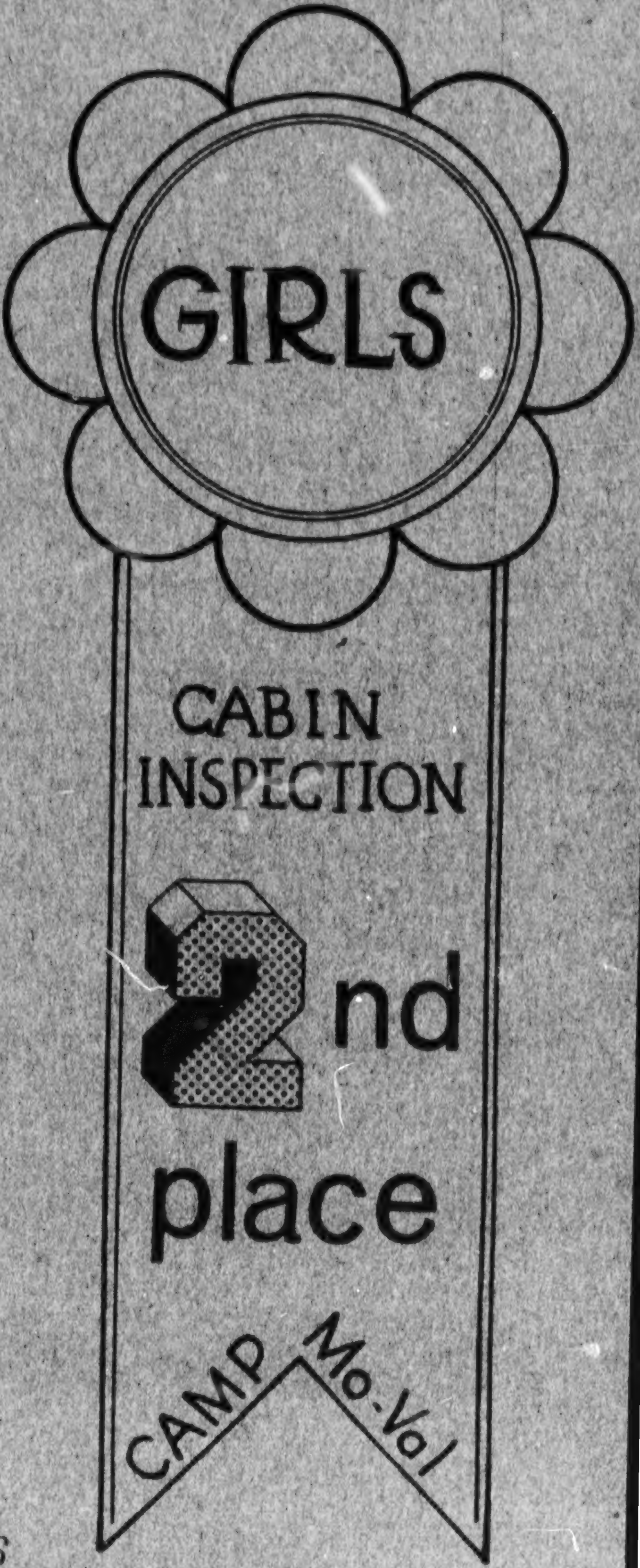
LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 509


BOYS
CABIN
INSPECTION
2nd
place
CAMP Mo-Val


GIRLS
CABIN
INSPECTION
2nd
place
CAMP Mo-Val

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 509

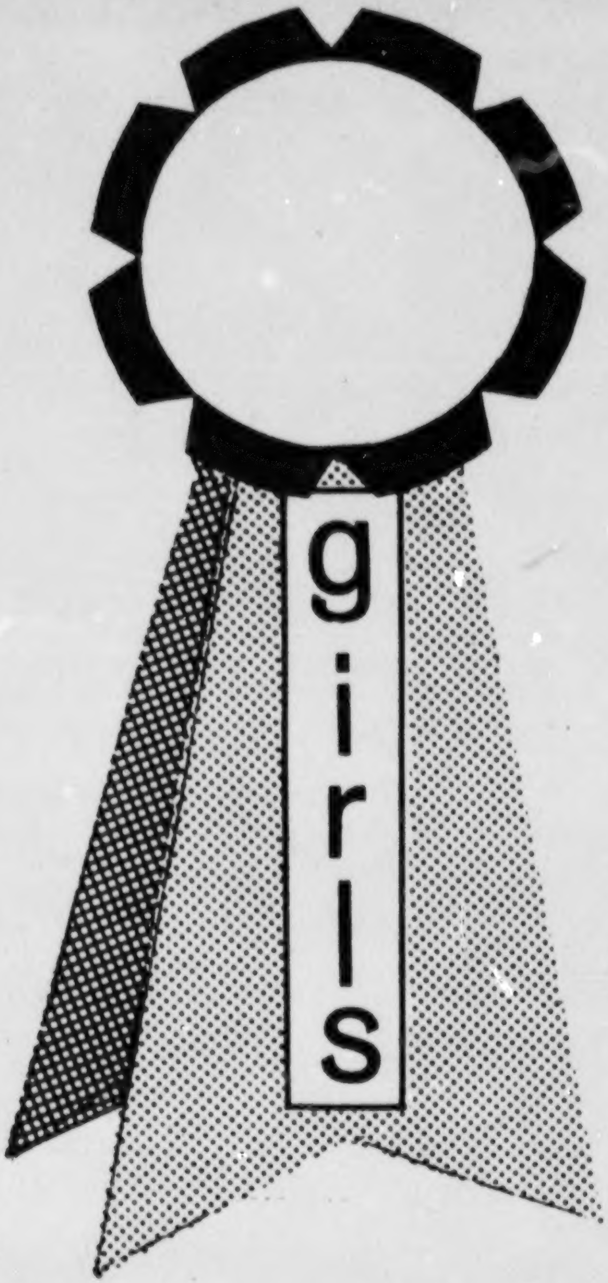

BOYS
CABIN
INSPECTION
2nd
place
CAMP Mo-Val

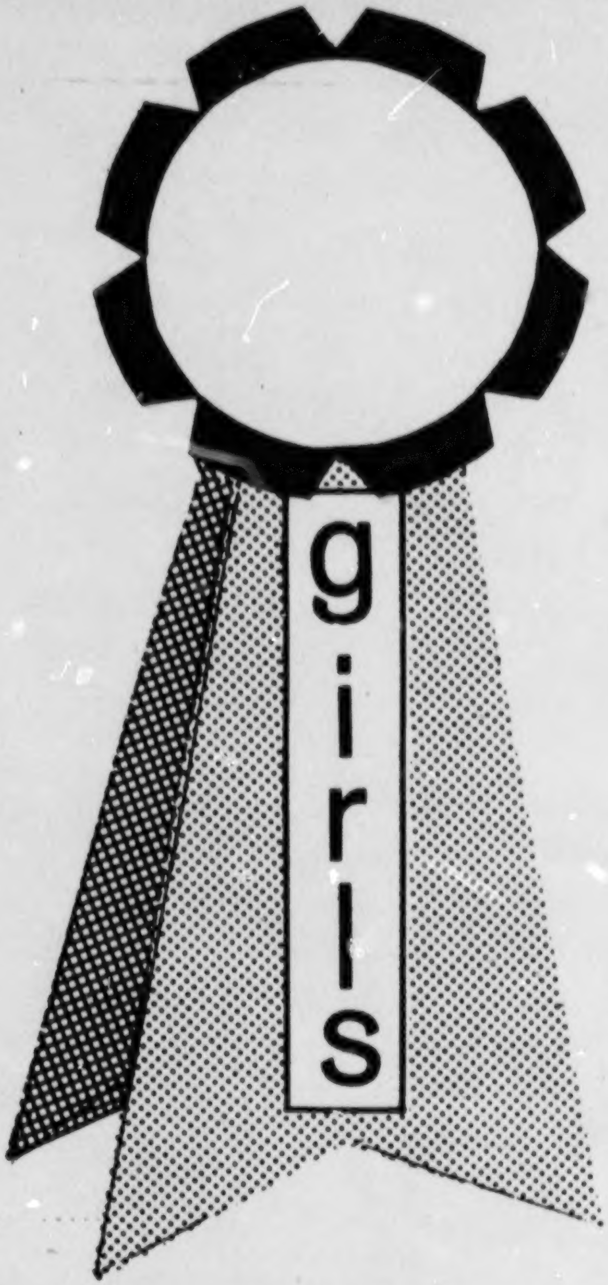

GIRLS
CABIN
INSPECTION
2nd
place
CAMP Mo-Val

417

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM 510

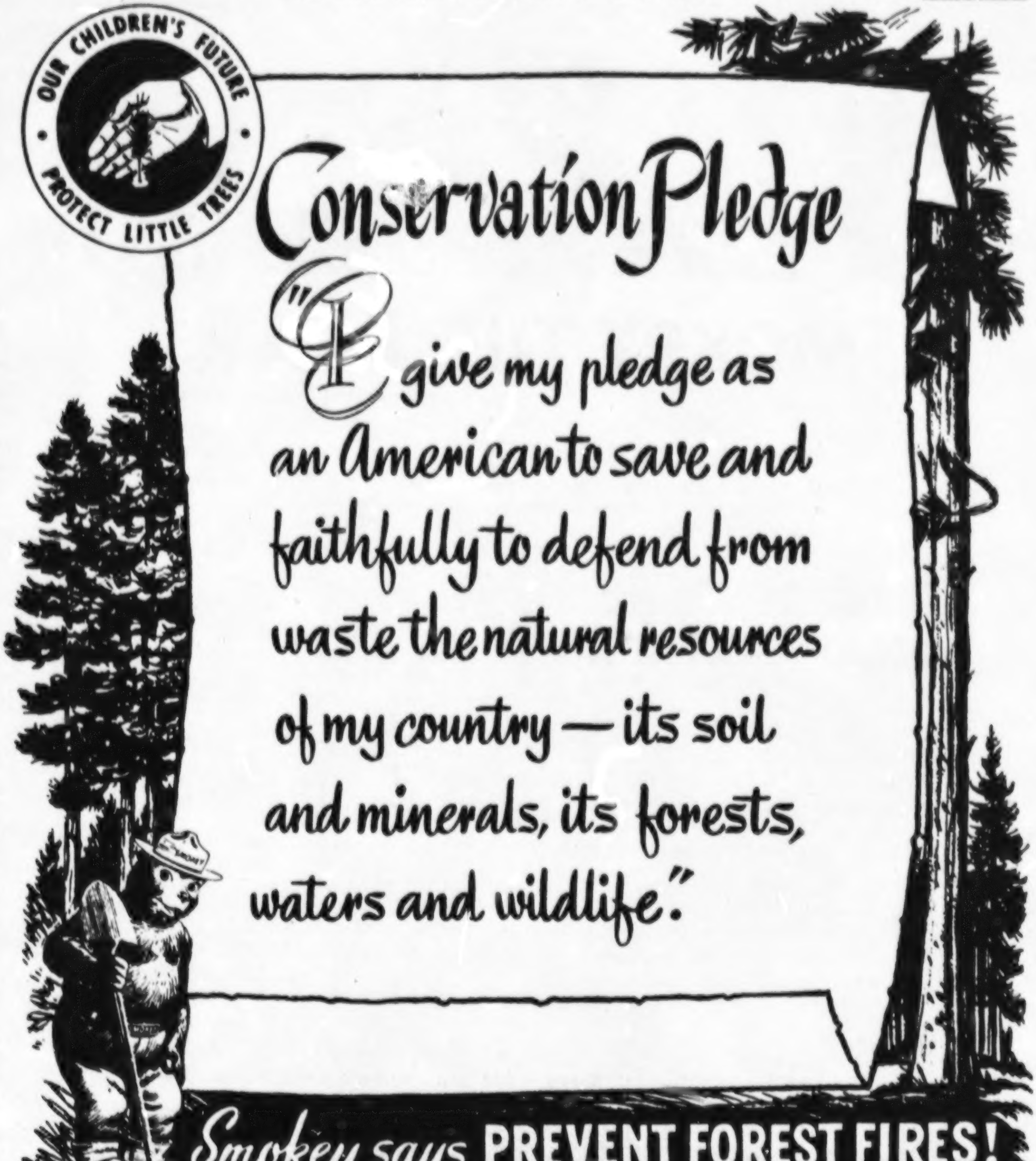
418





LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION FORM# 511

LINDBERGH SCHOOL DISTRICT OUTDOOR EDUCATION Form # 512


OUR CHILDREN'S FUTURE
PROTECT LITTLE TREES
SMOKEY

Conservation Pledge

"I give my pledge as an American to save and faithfully to defend from waste the natural resources of my country — its soil and minerals, its forests, waters and wildlife."

Smokey says **PREVENT FOREST FIRES!**

Missouri Conservation Commission
Forestry Division

U. S. Department of Agriculture
Forest Service

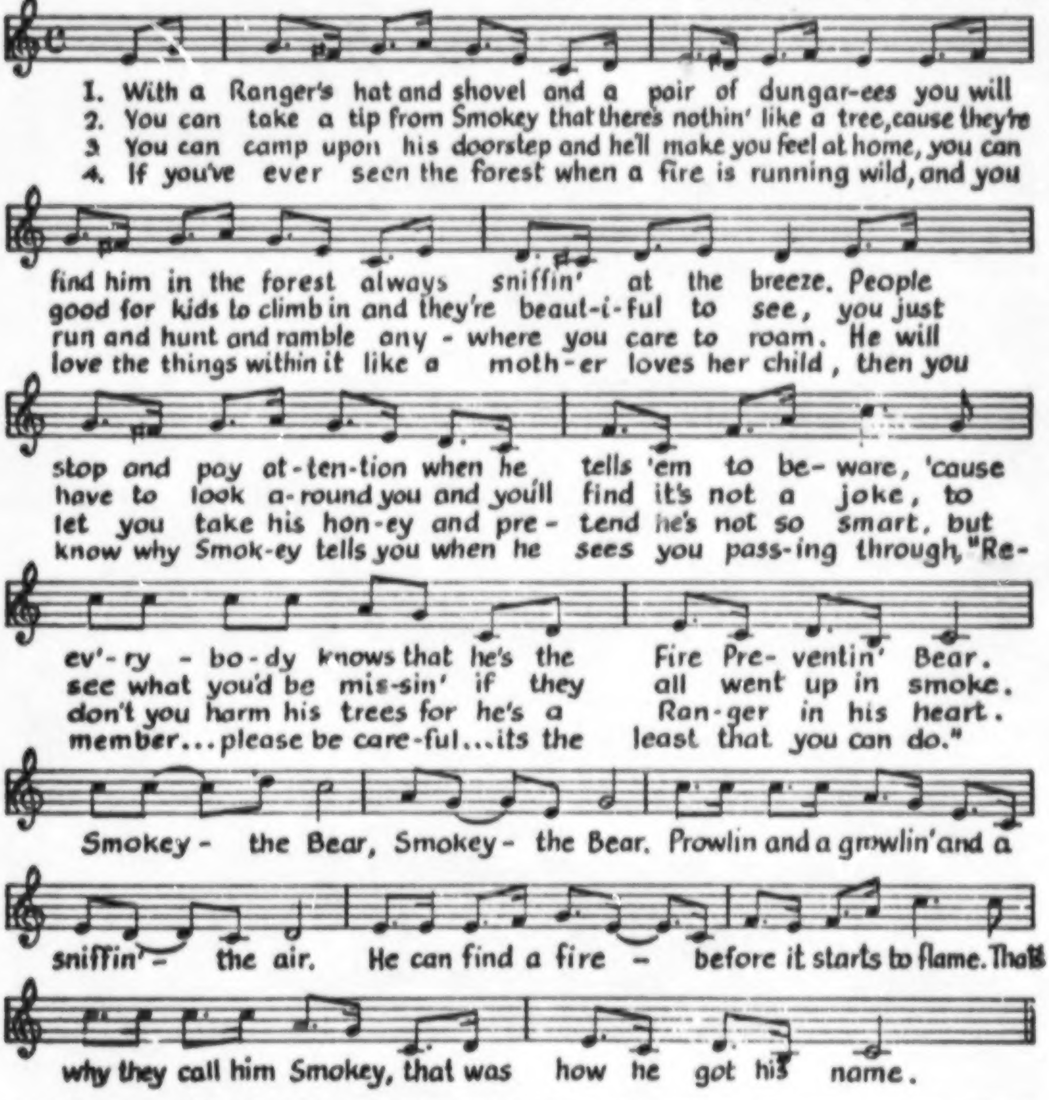
Forestry Division
Missouri Conservation Commission

U. S. Department of Agriculture
Forest Service

SMOKEY
PREVENT FOREST FIRES!
R. Wendelin

SMOKEY THE BEAR

By STEVE NELSON and JACK ROLLINS


1. With a Ranger's hat and shovel and a pair of dungar-ees you will
2. You can take a tip from Smokey that theres nothin' like a tree, cause they're
3. You can camp upon his doorstep and he'll make you feel at home, you can
4. If you've ever seen the forest when a fire is running wild, and you
find him in the forest always sniffin' at the breeze. People
good for kids to climb in and they're beaut-i-ful to see, you just
run and hunt and ramble any - where you care to roam. He will
love the things within it like a moth - er loves her child, then you
stop and pay at-ten-tion when he tells 'em to be- ware, 'cause
have to look a-round you and you'll find it's not a joke, to
let you take his hon-ey and pre - tend he's not so smart, but
know why Smok-ey tells you when he sees you pass-ing through, "Re-
ev'-ry - bo-dy knows that he's the Fire Pre- ventin' Bear.
see what you'd be mis-sin' if they all went up in smoke.
don't you harm his trees for he's a Ran-ger in his heart.
member... please be care-ful... its the least that you can do."
Smokey - the Bear, Smokey - the Bear. Prowlin and a growlin' and a
sniffin' - the air. He can find a fire - before it starts to flame. That's
why they call him Smokey, that was how he got his name.

THIS SONG WRITTEN UNDER LICENSE OF THE U. S. DEPARTMENT OF AGRICULTURE TO HILL AND RANGE SONGS, INC., AND RECORDED, UNDER LICENSE, BY SEVERAL COMPANIES, INCLUDING RCA-VICTOR, COLUMBIA, DECCA, AND GOLDEN RECORDS